

INTRODUCTORY LECTURES.

SIXTEEN

INTRODUCTORY LECTURES,

TO COURSES OF LECTURES UPON THE

Institutes and Practice of Medicine,

WITH A SYLLABUS OF THE LATTER.

TO WHICH ARE ADDED,

TWO LECTURES

UPON THE PLEASURES OF THE SENSES AND OF THE MIND;
WITH AN INQUIRY INTO THEIR PROXIMATE CAUSE.

DELIVERED IN THE

UNIVERSITY OF PENNSYLVANIA.

BY BENJAMIN RUSH, M. D.

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District of Pennsylvania, to wit:

* BE IT REMEMBERED, That on the thirtieth day of Janua-
* ry, in the thirty-fifth year of the Independence of the United
* Seal. * States of America, A. D. 1811, Benjamin Rush, M. D. of the said
* district, hath deposited in this office the title of a book, the right whereof he
* claims as author, in the words following, to wit:

“Sixteen Introductory Lectures, to courses of Lectures upon the Institutes and Practice of Medicine, with a Syllabus of the latter. To which are added, two Lectures upon the Pleasures of the Senses and of the Mind; with an inquiry into their proximate cause. Delivered in the University of Pennsylvania. By Benjamin Rush, M. D. Professor of the Institutes and Practice of Medicine, in the said University.”

In conformity to the act of the congress of the United States, intituled, “An act for the encouragement of learning, by securing the copies of maps, charts and books, to the authors and proprietors of such copies, during the times therein mentioned.” And also to the act, entitled “An act supplementary to an act, entitled “An act for the encouragement of learning, by securing the copies of maps, charts, and books, to the authors and proprietors of such copies, during the time therein mentioned,” and extending the benefits thereof to the arts of designing, engraving, and etching historical and other prints.”

D. CALDWELL,

Clerk of the District of Pennsylvania

AN edition of the first six of the following introductory lectures, and of the syllabus of the author's course of lectures upon the Institutes and Practice of Medicine, having been disposed of; a second edition of both, with considerable additions to the latter, is now offered to the public, together with ten more introductory lectures; also two, upon the Pleasures of the Senses and of the Mind, delivered in the University of Pennsylvania, as supplements to his physiological views of each of those subjects. The author has committed them to the press in their present form, in compliance with the requests of his pupils, made at the time most of them were delivered. To those pupils, whether they are now exercising the duties of their profession in different parts of the United States, or whether they compose his present numerous and respectable class, this effort, to excite inquiry and observation, and to extend the objects and usefulness of the science of medicine, is respectfully inscribed, by their friend,

THE AUTHOR.

January 24, 1811.

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LECTURE I.

ON THE NECESSARY CONNEXION BETWEEN OBSERVATION, AND REASONING IN MEDICINE.

Delivered November 7th, 1791.

GENTLEMEN,

I SHOULD do great violence to my feelings, should I proceed to the subjects of the ensuing course of lectures, without first congratulating you upon the union of the two medical schools of Philadelphia, under a charter founded upon the most liberal concessions, by the gentlemen who projected it, and upon the purest principles of patriotism in the legislature of our state. By means of this event, the ancient harmony of the different professors of medicine will be restored, and their united labours will be directed, with accumulated force, towards the advancement of our science.

By the distribution of the various branches of medicine, into so many different professorships, we claim, for the first time, an equality in the objects of medical education, with the oldest universities in Europe.

It is true the expenses of an education in medicine will be somewhat increased by the present extensive mode of conducting it, but its advantages

will be increased in the same proportion, and they will still be one third less, without including the sums expended for two voyages across the ocean, than they are in the university of Edinburgh.

In comparing a medical education in an American, with that which is given in an European seminary, I cannot forbear mentioning two things, in favour of the former, which should always give it a preference in the mind of an American student. In the first place, he will here study the diseases of the country in which he is to practise. Climate, aliment, manners, and states of society have so much influence upon the characters of diseases, that they seldom appear in the same forms, or yield to the same remedies, in different countries. And, secondly, from the character of our domestic diseases thus known, he will be able, more readily, to deviate, when it is proper, from European systems of medicine, and to adopt principles which are founded upon the signs of diseases in his own country.

The arduous business assigned me in the new arrangement of professorships, is to teach the institutes of medicine, and to illustrate them by clinical lectures upon such diseases as may occur in the Pennsylvania hospital during the winter.

In order to understand the nature and importance of this branch of medicine, I shall detain you a few minutes from the objects of our course, while I deliver a few remarks, upon the theory and practice of physic, considered as distinct parts of a medical education. The time thus employed will not be mis-

spent, for I well know, from my own experience, how much prejudice and error there are upon those subjects among students of medicine.

Physicans have been divided into empirics and dogmatists. The former pretend to be guided by experience, and the latter by reasoning alone in their prescriptions. I object to both when separately employed. They lead alike to error and danger in the practice of physic. I shall briefly point out the evils which result from an exclusive reliance upon each of them.

1. Empiricism presupposes a correct and perfect knowledge of all the diseases of the human body, however varied they may be in their symptoms, seats, and force, by age, habit, sex, climate, season, and aliment. Now, it is well known, that the longest life is insufficient for the purpose of acquiring that knowledge. This will appear more evident, when we consider that it must be seated, exclusively, in the memory; a faculty which is the most subject to decay, and the least faithful to us of any of the faculties of the mind. Few physicians, I believe, ever recollect, perfectly, the phenomena of any disease more than two years, and, perhaps, for a much shorter time, when they are engaged in extensive business.

2. Neither can the defect of experience, nor the decay, or weakness of the memory in one physician, be supplied by the experience and observations of others. Few men see the same objects through the same medium. How seldom do we find the histories of the same disease, or of the effects of the same me-

dicine to agree, even when they are related by physicians of the most respectable characters for talents and integrity! An hundred circumstances, from the difference of treatment, produce a difference in the symptoms and issue of similar diseases, and in the operation of the same medicines. The efforts of nature, are, moreover, often mistaken for the effects of a favourite prescription; and, in some instances, the crisis of a disease has been ascribed to medicines which have been thrown out of a window, or emptied behind a fire.

3. If it were possible to obviate all the inconveniences and dangers from solitary experience which have been mentioned, an evil would arise from the nature of the human mind, which would defeat all the advantages that might be expected from it. This evil is a disposition to reason upon all medical subjects, without being qualified by education for that purpose. As well might we attempt to control the motions of the heart by the action of the will, as to suspend, for a moment, that operation of the mind, which consists in drawing inferences from facts. To observe, is to think, and to think, is to reason in medicine. Hence we find theories in the writings of the most celebrated practical physicians, even of those who preface their works by declaiming against idle and visionary speculations in our science; but, I will add, further, that I believe no empiric ever gave a medicine without cherishing a theoretical indication of cure in his mind. Some acrid humour is to be obtunded, some viscid fluid is to be thinned, some

spasm is to be resolved, or debility in some part of the body is to be obviated, in all his prescriptions.

To an exclusive reliance upon theory in medicine, there are an equal number of objections. I shall only mention a few of them.

1. Our imperfect knowledge of the structure of the human body, and of the laws of the animal economy.

2. The limited extent of the human understanding, which acquires truth too slowly to act with effect, in the numerous and rapid exigences of diseases.

3. The influence of the imagination and passions, upon the understanding in its researches after truth. An opinion becomes dear to us by being generated in our imaginations; and contradiction, by inflaming the passions, increases our attachment to error. It is for these reasons, we observe great, and even good men, so zealously devoted to their opinions, and the practice founded upon them, even after they have been exposed and refuted by subsequent discoveries in medicine.

From this view of the comparative insufficiency of experience and theory, in our science, it will be impossible to decide in favour of either of them in their separate states. The empirics and dogmatists have mutually charged each other with the want of successful practice. I believe them both, and will add, further, if an inventory of the mischief that has been done, by empirics, within the present century, whether they acted under the cover of a diploma, or im-

posed upon the public by false and pompous advertisements, could be made out, and compared with the mischief which has been done by a practice in medicine, founded upon a belief in the archeus of Van Helmont, the anima medica of Stahl, the spasm of Hoffman, the morbid acrimonies of Boerhaave, the putrefaction of Cullen, and the debility of Brown, as the proximate causes of diseases, I am satisfied neither sect would have any cause of exultation, or triumph. Both would have more reason to lament the immense additions they have made to pestilence and the sword in their ravages upon the human race.

It is peculiar to man, to divide what was intended by the Author of nature to be indivisible. Religion and morals, government and liberty, nay, even reason and the senses, so happily paired by the Creator of the world, in the order in which they have been mentioned, have each been disunited by the caprice and folly of man. The evils which have arisen from this breach in the symmetry of the divine government cannot now be enumerated. It belongs to our present subject, only to take notice that the same hostile disposition in the human mind, to order and utility, appears in the attempts that have been made to separate experience and reasoning in medicine. They are necessarily united, and it is only by preserving and cultivating their union, that our science can be made to convey extensive and lasting blessings to mankind.

The necessity of combining theory and practice in medicine, may be illustrated, by the advantages

which other sciences have derived from the union of principles and facts. The numerous benefits and pleasures we enjoy from the glasses which have been made use of to extend our vision to distant and minute objects, are the results of a knowledge of the principles of optics. The many useful inventions which are employed to shorten and facilitate labour, are the products of a knowledge of the principles of mechanics and hydraulics. The exploits of mariners in subduing the ocean, and all the benefits that have occurred to the world from the connexion of the extremities of our globe by means of commerce, are the fruits of a knowledge in the principles of navigation. Equally great have been the advantages of theory in the science of medicine. It belongs to theory to accumulate facts; and hence we find the greatest stock of them is always possessed by speculative physicians. While simple observation may be compared to a power which creates an alphabet, theory resembles a power which arranges all its component parts in such a manner, as to produce words and ideas. But theory does more. It supplies in a great degree the place of experience, and thereby places youth and old age nearly upon a footing in the profession of medicine; for, with just principles, it is no more necessary for a young physician to see all the diseases of the human body before he prescribes for them, than it is for a mariner, who knows the principles of navigation, to visit all the ports in the world, in order to conduct his vessel in safety to them.

To illustrate still further the benefits of theory, I

shall take notice of its influence upon the use of several celebrated and popular remedies.

Accident probably first suggested the use of cool air in the cure of fevers. For many years it was prescribed indiscriminately in every form and grade of those diseases, during which time it did as much harm as good. It was not until chemistry taught us that its good effects depended wholly upon its abstracting the heat of the body, that its application was limited to those fevers only, which are accompanied with preternatural heat, and excessive action in the blood-vessels. Since the use of cool air has been regulated by this principle, its effects have been uniformly salutary in inflammatory fevers.

While the Peruvian bark was believed to act as a specific in the cure of intermittents, it was often an ineffectual, and sometimes a destructive medicine; but since its tonic and astringent virtues have been ascertained, its injurious effects have been restrained, and its salutary operation extended to all those fevers, whether intermitting, remitting, or continual, in which a feeble morbid action takes place in the sanguiferous system.

Opium was formerly used only as an antidote to wakefulness and pain, during which time it often increased the danger and mortality of diseases; but since its stimulating virtues have been discovered, its exhibition has been regulated by the degree of excitement in the system, and hence it is now administered with uniform safety, or success.

Mercury was prescribed empirically for many years in the cure of several diseases, in which it

often did great mischief; but since it has been discovered to act as a general stimulant and evacuant, such a ratio has been established between it, and the state of diseases, as to render it a safe and nearly an universal medicine.

In answer to what has been delivered in favour of the union of experience and reasoning in medicine, it has been said, that the most celebrated physicians, in all ages, have been empirics; among whom they class Hippocrates and Sydenham. This charge against the illustrious fathers of ancient and modern medicine is not just, for they both reasoned upon the causes, symptoms, and cure of diseases; and their works contain more theory, than is to be met with in many of the most popular systems of medicine. Their theories, it is true, are in many instances erroneous; but they were restrained from perverting their judgments, and impairing the success of their practice, by their great experience, and singular talents for extensive and accurate observation. This defence of Hippocrates and Sydenham does not apply to common empirics. They cure only by chance; for, by false reasoning, they detract from the advantages of their solitary experience. It is true, they often acquire reputation and wealth, but this must be ascribed to the credulity of their patients, and to the zeal with which they justify their preference of such physicians, by multiplying and exaggerating their cures, or by palliating, or denying their mistakes. It is for this reason that it has been well said, "Quacks are the greatest liars in the world, except their patients."

We are further told, in favour of empiricism, that physicians of the first character have acknowledged the fallacy of principles in medicine. I cannot assent to the truth of this assertion. It is contradicted by the history of our science in all ages and countries. The complaints of its fallacy, and even of its uncertainty, originate, I believe, in most cases, in ignorance, indolence, or imposture; and therefore were never uttered by men of eminence and integrity in our profession.

In the progress of medicine towards its present state of improvement, different theories or systems have been proposed by different authors. You will find a minute and entertaining account of such of them as have been handed down to us from antiquity in Dr. Black's *History of Medicine*. They are all necessarily imperfect, inasmuch as none of them embraces the numerous discoveries in anatomy, physiology, chemistry, materia medica, and natural philosophy, which have been made within the two last centuries in Europe. The systems which divide the physicians of the present day, are those of Dr. Stahl, Dr. Boerhaave, Dr. Cullen, and Dr. Brown.

1. Dr. Stahl lived and wrote in a country remarkable for the simplicity of the manners of its inhabitants. Their diseases partook of their temperate mode of living, and were often cured by the operations of nature, without the aid of medicine; hence arose Dr. Stahl's opinion of the vires naturæ medicatrices, or of the existence of an anima medica, whose business it was to watch over the health of

the body. We shall show, therefore, the error of these supposed healing powers in nature, and the extreme danger of trusting to them in the dangerous and complicated diseases, which are produced by the artificial customs of civilized life.

2. Dr. Boerhaave lived and wrote in a country in which a moist atmosphere, and an excessive quantity of unwholesome aliment, had produced an immense number of diseases of the skin. These were supposed to arise from an impure state of the blood, and hence lentor, tenuity, and acrimony in that fluid were supposed to be the proximate causes of all the diseases of the human body.

3. Dr. Cullen lived and wrote in a country in which indolence and luxury had let loose a train of diseases which appeared to be seated chiefly in the nervous system, and hence we find the laws of that system have been investigated and ascertained by him with a success which has no parallel in the annals of medicine. In his concentrated views of the nervous system he has overlooked, or but slightly glanced at the pathology of the bloodvessels, and by adopting the nosology of Sauvage, Linnæus, and Vogel, he has unfortunately led physicians to prescribe for the names of diseases, instead of their proximate cause.

4. In the system of Dr. Brown, we find clear and consistent views of the causes of animal life, also just opinions of the action of heat and cold, of stimulating, and what are called sedative medicines, and of the influence of the passions in the produc-

tion and cure of diseases. But while he has thus shed light upon some parts of medicine, he has thrown a shade upon others. I shall hereafter take notice of all the errors of his system. At present I shall only say, I shall not admit with him, debility to be a disease. It is only its predisposing cause. Disease consists in morbid excitement, and is always of a partial nature: of course I shall reject his doctrine of equality of excitement in the morbid states of the body, and maintain, that the cure of diseases consists simply in restoring the equal and natural diffusion of excitement throughout every part of the system. If Dr. Cullen did harm by directing the attention of physicians, by means of his nosology, only to the names of diseases, how much more mischief has been done by Dr. Brown, by reducing them nearly to one class, and accommodating his prescriptions to the reverse state of the body, of that which constitutes their proximate cause.

A perfect system of medicine may be compared to a house, the different stories of which have been erected by different architects. The illustrious physicians who have been named, have a large claim upon our gratitude, for having, by their great, and successive labours, advanced the building to its present height. It belongs to the present and future generations to place a roof upon it, and thereby to complete the fabric of medicine.

In the following course of lectures I shall adopt such principles of Dr. Boerhaave, Dr. Cullen, and Dr. Brown, as I believe to be true, and shall add to

them such others, as have been suggested to me, by my own observations and reflections.

If, in delivering new opinions, I should be so unfortunate as to teach any thing, which subsequent reflection or observation should discover to be erroneous, I shall publicly retract it. I am aware how much I shall suffer by this want of stability in error, but I have learned from one of my masters to "esteem truth the only knowledge, and that labouring to defend an error, is only striving to be more ignorant."*

Upon those parts of our course on which I am unable to deliver principles, I shall lay before you a simple detail of facts. Our labour in this business will not be lost, for, however long those facts may appear to lie in a confused and solitary state, they will sooner or later unite in that order and relation to each other which was established at the creation of the world. From this union of prerelated truths, will arise, at some future period, a complete system of principles in medicine.

We live, gentlemen, in a revolutionary age. Our science has caught the spirit of the times, and more improvements have been made in all its branches, within the last twenty years, than had been made in a century before. From these events, so auspicious to medicine, may we not cherish a hope, that our

* The Rev. Dr. Samuel Finley many years master of a large academy in Nottingham in Maryland, and afterwards President of the College of New-Jersey.

globe is about to undergo those happy changes, which shall render it a more safe and agreeable abode to man, and thereby prepare it to receive the blessing of universal health and longevity; for premature deaths seem to have arisen from the operation of that infinite goodness which delivers from evils to come.

The institutes of medicine have been divided into physiology, pathology, and therapeutics.

I. Physiology includes the history of the functions of the human body in its healthy state. In our lectures upon it, I shall suppose you to be acquainted with the structure of the body, and shall of course spend as little time as possible in anatomical descriptions. I shall include the faculties of the mind in this part of our course, and shall endeavour to explain their operations in a manner so simple, as to make them intelligible to the youngest student of medicine.

II. Pathology has for its objects, the remote, exciting, and proximate causes of diseases. I shall depart from the order of Dr. Gregory, in his *Conspectus Medicinæ Theoreticæ*, by separating this part of our course from the physiology. In doing so, I shall imitate those divines, who first consider the faculties of the mind in their perfect state in the garden of Eden, before they describe the changes that have been induced in them by the loss of primeval innocence.

III. The therapeutics will contain an account of the operation of remedies in the cure of diseases.

IV. The clinical lectures will form a material part of our course. To render them as useful as possible, I shall begin by delivering a few remarks upon the method of visiting and examining sick people. I shall then proceed to point out the usual signs of diseases, as they appear in every part of the body, and more especially, as they are discovered by the pulse. I shall afterwards exemplify these preliminary remarks in the public examination and treatment of such cases in the hospital as afford the most practical instruction. An exact account shall be kept in the English language, of the diseases and remedies of the clinical patients, and a report made of them twice a week from this chair. As soon as the issue of the cases is known they shall become the subjects of clinical lectures.*

Here, gentlemen, I intended to have concluded my introductory lecture. But after reviewing what I have delivered, I am forced to declare, and that too without the least affectation of modesty, that I have given the outlines of what a course of lectures, upon the institutes of medicine and clinical practice, *should be*, and not what it *will be*, in my hands. A zeal to promote the union and interests of our medical schools, has, I fear, been mistaken by me, for knowledge and talents, equal to my present undertaking. I feel my incapacity for it. The physiological con-

* A syllabus of these lectures, with the additions to it, which became necessary after the author undertook to teach the practice of physic, is subjoined to this lecture.

troversies, which compose so great a part of the medical instruction given in all universities, have, for many years, been wearing out of my mind, and I have yet much to learn of the discoveries and improvements of modern times in that branch of medicine. But whatever may be the issue of my present attempt, I shall continue to assert, should I fail of fulfilling your wishes, that principles in medicine, are the only safe and certain guide to successful practice.

SYLLABUS

OF

A COURSE OF LECTURES,

UPON

Physiology, Pathology, Hygiene, and the
Practice of Medicine.

PART I.

OF PHYSIOLOGY.

CHAPTER I.

INTRODUCTION.

Of animal life.

Of animal heat.

Of respiration.

Of the causes of coughing.

sneezing.

yawning.

laughter and crying.

Of voice.

Of the use of the thyroid gland.

Of speech—how acquired.

Of the circulation of the blood.

Of the functions of the spleen and thymus gland.

Of the nervous system in which are included the offices of the

Brain,

Nerves, and

Muscles.

Of impression, sensation, and motion.

Of the laws of sensation and motion.

Of the influence of habit upon each of them.

Of voluntary and involuntary motion.

Of sympathy,

continuous,

contiguous,

reciprocal,

nonreciprocal, and

inverse.

Enumeration of the principal sympathies which take place in the body.

Of the senses:

Of touch,

taste,

smelling,

seeing,

hearing.

Of the subserviency of the senses to each other, and of the knowledge derived from them.—Of the limits of that knowledge, and of the necessity of combining it with the knowledge which is derived from reason and faith, or what is called testimony.

Of the faculties and operations of the mind.

History of the different opinions of the nature of the mind.

Of its faculties. These are,

Instinct,
Memory,
Imagination,
Understanding,
Will,
Passions and emotions,
Faith.

Moral faculties in which are included what is called the moral sense,—Conscience, and the sense of Déity.

Of taste.

Of the operations of the mind. The principal of which after sensation are

Perception,
Association,
Judgment,
Reason,
Volition.

Of genius, intuition, and common sense.

Of attention, reflection, contemplation, and wit.

Of consciousness.

Of the manner in which the faculties of the mind are evolved.

Of the faculties and operations of the human mind which distinguish them from those of brutes.

Of the pleasures of the senses and of the mind, and of their proximate cause.

Of the causes of sleep and dreams, and somnambulism.

CHAPTER II.

Of aliment.

Of hunger.

Of thirst.

Peculiarities of the stomach.

Of digestion.

Of the function of the omentum.

of the liver.

Of the chyle.

Of the lacteals and lymphatics.

Objections to cutaneous absorption.

Of the secretions and excretions.

Of nutrition.



CHAPTER III.

Of the peculiarities of the male and female, body and mind.

Of menstruation, generation, conception, and parturition.

Of the different stages of life.

Of health.

Of the natural and artificial analysis of the solids and fluids of the body.

PART II.

HYGIENE.

Of the frailty of the human body, and the impossibility of obviating its decay and dissolution, by any remedy, or mode of living.

Of the means of preserving health, and promoting longevity.

PART III.

PATHOLOGY.

INTRODUCTION.

I. The objects of pathology.

Definition of disease.

Causes of disease.

Of the predisposing cause of disease.

Of debility, native and acquired.

Causes of native debility.

Causes of acquired debility.

All predisposition to disease founded in debility, from abstraction or action. This predisposing debility is arterial, hepatic, nervous, muscular, cephalic, phrenitic, alimentary, lymphatic, and cutaneous. Remarks upon these predispositions, and upon their change from a laxum or an excitable, to a strictum, or nonexcitable state.

Of depression, elevated excitement, morbid action, oppression and prostration.

Of the difference between morbid and elevated excitement.

Of the partial nature of morbid excitement or of disease, and of its difference from disorder.

Of the unity of disease.

Facts and arguments in support of the unity of disease derived from the unity of other physical evils, and of moral evil.

Of the six primary forms of disease, viz: convulsion, spasm, preternatural heat, itching, aura dolorifica, and suffocated excitement, and of their combinations with each other.

A scale of the phenomena of disease, and of their application to the practice of medicine.

Of the effects of disease.

Of the seats of disease.

Of the difficulties of discovering them by signs, and dissections.

II. Of the signs of disease.

In what manner they are diversified.

From what circumstances they are to be taken.

Signs of disease, particularly as they appear in pain and in the pulse.

Of the proximate cause, and of the various forms of pain. Remarks upon it.

Of the pulse.

Of its natural history in health.

Of its morbid states, as discovered in preternatural frequency and quickness, and in a departure from its natural force and regularity.

Enumeration of the different states of the pulse as exhibited in disease, and particularly in fever.

The depressed pulse, how distinguished from a weak pulse.

Catgut, or corded pulse,

Synochus fortis,

Synocha,

Synochula,

Synochus mitis,

Synochoid,

Typhoid,

Typhus,

Gaseous,

Hectic,

Fluctuating,

Double,

Serrated,

Vermicular,

Creeping,

Morbidly natural.

Compounds of pulses.

Of the bounding pulse.

Of the pulse of debility.

Of the aneurismatic pulse.

Of the absence of pulse in certain states of disease.

Directions for feeling the pulse.

IV. Of disease as divided into

Idiopathic, symptomatic, acute, chronic, epidemic, endemic, sporadic, intercurrent, dry, dumb, and contagious.

V. Of the remote causes of disease, from the sensible qualities of the air.

Of the positive and relative effects of heat upon the body.

Of the direct, indirect and relative effects of cold upon the body.

Of the effects of a moist and dry air upon the body.

Of the effects of preternatural density and rarity of the air upon the body.

Of the effects of different winds upon the body, and particularly of the ordinary winds in the United States.

Of the effects of air *in* the body.

Of the remote causes of disease from the insensible qualities of the air. These are,

1. Koinomiasmatic, and

2. Idiomiasmatic exhalations. The former are derived from dead and putrid animal and vegetable exhalations, the latter, from living animals.

3. The matter which produces the influenza.

4. Certain matters which are generated by secretion in the human body, and propagated from one person to another through the medium of the air. They are known by the name of contagions.

5. Certain matters which are discharged from the lungs in respiration.

6. Certain matters discharged from charcoal, calcarious substances and fermenting liquors, called carbonic gas.

7. Hydrogen gas.
8. Harmattan winds.
9. A matter discharged from the earth by earthquakes.
10. A vapor from springs.
11. Sulphur in a gaseous form.
12. The air of a stove-room.
13. The effluvia of certain manufactories.
14. Certain odours from flowers.
15. Particles of certain metals and earths, and the pollen of plants.
16. The matter which forms the inflammatory constitution of the atmosphere.

Of the morbid effects of each of the above matters upon the body, and of their manner of operating.

Of epidemics and their laws.

Of the signs which precede them.

Of the effects of different seasons and months, and of situations upon health and life, and of a change of situations.

Of the effects of thunder, lightning, and earthquakes, upon health and life.

Of the effects of light, and sound upon the body.

Of the influence of the heavenly bodies upon health and life.

VI. Of the morbid effects of different aliments, drinks and condiments upon the body.

Of the diseases induced by

Poisons,

Dress,

Foreign matters introduced into the body,
particularly the alimentary canal, lungs and
nose, or applied to the skin.

Of the diseases induced by worms.

By retained excretions.

By motion, rest, sleep, and wakefulness in
excess.

By the undue exercise of the understanding
and passions, and of the venereal appetite.

By different states of society, governments,
religions, employments, and amusements.

By peculiar customs.

By unhealthy ancestors producing hereditary
predisposition to, and congenial diseases.

Of filial diseases.

Of diseases induced

By an injudicious confidence in the operations
of nature, in false systems of medicine, and in
quacks.

By the imprudent or habitual use of remedies
without, or by the advice of a physician.

By sympathy and antipathy.

By the association of ideas and motions.

By the effects of certain original diseases or
symptoms of diseases.

By injuries from falls and external violence ap-
plied to the body.

By submersion and other accidents which sus-
pend animation.

Of the diseases induced by the peculiar state of the
system in infancy, childhood, puberty, adoles-
cence, manhood, and old age. Also in the single

and married life, in pregnancy, and in the period in which the menses cease.

Of the diseases from deformity and from preternatural size.

Of the proximate cause of death, and of the usual phenomena which take place in dying.

Of the signs of death.

PART IV.

OF THERAPEUTICS;

OR OF THE METHOD OF CURING DISEASES.

THE objects of this part of the institutes of medicine.

General directions for acquiring a knowledge of diseases and for applying remedies for their cure.

Of diseases said to be incurable.

Of diseases which it is unsafe to cure.

Of specific remedies.

Of the operations of nature in diseases, *and* of the danger of trusting her in such as are violent.

Advantages to be derived from observing the tendency of her operations in certain diseases.

Of the choice of medicines.

Of the mixtures of medicines.

Of consultations.

Of the preparation of medicines.

Of the times in which it is proper to refrain from the use of medicines.

Of the remedies which are proper in elevated excitement, debility, depression, morbid excitement, oppression, prostration, disorder, and subsequent debility.

Of the signs and seats of excessive excitement and excitability.

Of the remedies which act upon the solids. These are sedative and stimulating.

Sedative remedies are direct, and indirect.

The former are

Bloodletting,

Cold,

Fear,

Rest,

Abstinence,

Darkness,

Silence,

Reduced air.

Rules for the exhibition of direct sedatives.

Of indirect sedatives. These are

Emetics,

Cathartics,

Diaphoretics,

Diuretics,

Expectorants,

Emenagogues,

Sialagogues,

Errhines,

Blisters,

Issues.

Of stimulating remedies.

Rules for their exhibition.

Of stimulants which suddenly reduce morbid action in every part of the body, and which have been supposed to act as sedatives.

Of stimulants which reduce morbid action by expending excitability.

Of the stimulants which remove morbid action by abstracting stimulus from diseased parts.

Of the stimulants which remove morbid action, by exciting a stronger and less diseased action in the affected part, or in some other part of the body less essential to life.

Of tonics or such medicines as prevent the recurrence of disease, by removing predisposing debility.

Of medicines which remove disease by abstracting redundant and foreign matters from the body, and which offend by their quantity or quality.

Of medicines which remove disease by mixing with, and thus destroying matters which offend by their quality

Of medicines which cure disease, by removing obstructions.

Of medicines which are supposed to cure disease by changing the quality of the fluids, or the texture of the solids.

Of the remedies for relieving pain.

Of the means of promoting longevity.

PART V.

PRACTICE OF MEDICINE.

CHAPTER I.

OF the inquiries to be made in discovering the causes, seats, and method of curing diseases.

Of the classification of diseases by Cullen, Darwin, and Brown.

Objections to each of them, and of the injuries done to medicine by them.

Of diseases as they appear chiefly and universally in the bloodvessels, and certain viscera in that form which is called fever.

Of the phenomena of fever.

Of the twelve primary states of fever as they appear in the bloodvessels, arranged according to their obvious force or grades of morbid excitement.

They are

Synochus fortis,

Synocha,

Synochula,

Synochoid,

Synochus mitis

and

Intermittent.



Hectic
and
Typhoid, }

Febricula,

Suffocated, or oppressed,

Prostrate, and

Gangrenous states of fever, commonly called
malignant.

Of the remedies for preventing the formation of fever during the existence of its predisposing debility and premonitory signs. They are fasting, rest, cool air or cold water, gentle stimulants, and gentle evacuants.

Of the means of extinguishing fever.

Of the remedies for fever when formed, accommodated to its primary grades. They are

I. Such things as lessen, by the abstraction of stimulus, the morbid and excessive action of the bloodvessels, or enable them to react when oppressed.

II. Such as by acting upon the stomach, bowels, brain, nerves, muscles, and skin, equalize the excitement of the whole system, and thereby indirectly destroy a weak action in the bloodvessels, by imparting to them a more vigorous and healthy action.

The remedies which belong to the first general head are

1. EVACUANTS. These are
Bloodletting,

Vomits,
Purges and opening clysters,
Sweating medicines,
Medicines which excite a salivation,
Blisters.

2. Remedies which abstract the stimulus of heat:
These are COLD, in the forms of air, water and ice.

Abstinence; and the
Abstraction of the stimulus of sound and light, by darkness and retirement.

Of the stimulus of invigorating passions, by moderate fear.

Of motion, by rest; and

Acrimony, by diluting drinks and cleanliness.

3. Remedies which divert local morbid excitement, congestion, inflammation, and serous effusion from parts that are essential to life in the first degree, to such as are less essential to it. These are all such as are mentioned under the head of evacuants; also,

Nitre and neutral salts,

Fixed alkalies,

Certain preparations of antimony,

Sugar of lead,

Foxglove, and

Applications, to the external parts of the body of sweet oil, and nitre dissolved in vinegar or water.

The remedies which belong to the second general head are *STIMULANTS*. These divide themselves naturally into such as are internal, and such as are external.

1. The internal stimulants are *medicines* and *aliments*.

The medicines are

All fermented and distilled liquors.

Volatile alkali.

Empyreumatic and aromatic oils; also certain fetid animal and vegetable substances.

Opium.

Ether.

Bark and bitters of all kinds.

Mercury.

Pure air.

Oxygen gas.

Invigorating passions and emotions.

Stimulating injections into the bowels.

The aliments include such vegetable and animal substances as are commonly used in diet, together with saloop, sago, tapioca, and the like.

2. The external stimulants are

Several of the internal stimulants so prepared as to be applied to different parts of the body, as the nose, the temples, limbs, and the external regions of the stomach and bowels. They are

Warm water by ablution, and cold water by affusion, over the whole body.

Blisters.

Cataplasms to the feet, and fomentations to the lower limbs.

Certain applications calculated to irritate and inflame the skin.

Caustics and scarifications.

Boiling water.

Frictions.

Light.

Sound.

Cautions against the use of sweating and purging remedies, the stagnation of urine in the bladder, the warm bath, cold drinks, rising out of bed, and protracted sleep; also against conforming remedies to the name of disease instead of its varying forms, and against the danger from the debility which succeeds the crisis of a fever, and of relapses.

Of the treatment proper during the convalescence from fever.

Of critical days.

Of the influence of the moon upon fevers.

Of the signs which indicate the issue of fever in life or death. These signs appear in

Debility.

Pain.

General or partial coldness of the body.

Thirst.

The pulse.

The tongue.

The senses.

The countenance.

Respiration.

The voice.

Different positions of the body.

Different states of sensibility and irritability.

Different states of the appetite for food.

Different states of the bowels.

Different states of secretion and excretion.

Different states of the faculties of the mind.

Remarks upon those states of autumnal bilious fever which affect the bloodvessels chiefly.

These are

The yellow fever.

The inflammatory bilious fever.

The mild remitting fever.

The intermitting fever.

The chronic bilious fever, and

The febricula, known in some parts of the United States by the name of inward fevers.

Remarks upon the plague, and the jail fever, and upon the fever from opium, mercury, the bite of rabid animals, and poisons.

Of those states of fever which affect the whole arterial system, but appear with greater morbid excitement in some parts, than in others. They are,

Sweating.

Fainting.

Burning.

Cold and chilly.

Petechial.

Intestinal, in which are included,	{	Diarrhœa.
		Dysentery.
		Colera morbus, and
		Bilious cholic.
Pulmonary, in which are included,	{	Pneumonia vera.
		notha.
		biliosa.
	{	Influenza.
		Catarrh from the sensible qualities of the air, and
Eruptive, in which are included,	{	Pulmonary consumption.
		The smallpox.
		The vaccine disease.
		Measles.
		Erysipelas.
		Miliary fever.
		Chicken-pox.
Anginose, in which are included,	{	Pemphigus.
		The malignant sore throat.
		The scarlet fever sore throat.
		The cynanche trachealis; or what is called croup.
		The mumps.
		The different forms of in- flammatory sore throat.
Arthritic, in which are included,	{	The rheumatic and the gouty states of fever
Cephalic, in which are included,	{	Phrenitic.
		Maniacal.
		Lethargic.
		Apoplectic, and Paralytic states fever.

The nephritic state of fever.

Hydropic, in which are included effu- sions of water, accompanied with morbid action in the bloodvessels, into the,	{	Brain.
		Lungs.
		Cavity of the thorax.
		Cavity of the abdomen.
		Ovaria.
		Scrotum.
		Testicles, and
		Lower extremities.
Hæmorrhagic, in which are included, dis- charges of blood, accom- panied with morbid action in the blood- vessels from the,	{	Nose.
		Lungs.
		Stomach.
		Liver.
		Bowels.
		Kidneys and bladder.
		Hæmorrhoidal vessels.
		Uterus, and
		Skin.

The amenorrhagic state of fever.

Of those misplaced states of fever, in which, from the force of the remote cause, or from predisposing debility, morbid action is thrown chiefly from the bloodvessels into other parts of the body, and is either local or general. They are

Gastritic.
Intestinal.
Hepatic.
Diabetic.
Hæmorrhoidal.

Cystic.
Ophthalmic.
Odontalgic.
Otagic.
Apthous.
Scrofulous.
Scorbutic.
Convulsive.
Hydrophobic.
Hysterical.
Hypochondriacal.
Cutaneous.

CHAPTER II.

Of diseases as they appear in the bloodvessels and nervous system (in the latter of which are included the nerves, muscles, brain, and mind) and the alimentary canal predominating in each of them, more or less, according to circumstances.

They are

Apoplexy.
Palsy.
Catalepsy.
Coma.
Wakefulness.
Vertigo.
Headach.
Epilepsy.
Hysteria.
Dyspepsia

The diseases of the mind, which include

Seatou mania.

Allou mania.

General mania in its highly inflammatory state.

Manicula.

Manalgia.

Fatuity.

Defect and loss of memory.

Dreaming.

Phantasms.

Absence of mind.

Operations of the mind in a trance.

Fainting.

Asphixia.

Diseases of the passions, and of the venereal appetite.

From Love.

Fear.

Grief.

Anger.

Malice.

Envy.

Lust.

Of the absence or torpor of the passions.

Diseases of the moral faculties.

Of Asthma.

Dyspnœa.

Angina pectoris.

Tremors.

Tetanus.

Choria.
Hiccup.
Cramp.
Colic.
Diarrhœa.
Costiveness.

CHAPTER III.

OF general diseases, as they appear chiefly in the lymphatic system.

The Venereal disease.
Cancer.
Rickets.

CHAPTER IV.

OF general diseases, as they appear chiefly on the skin.

CHAPTER V.

OF local diseases and disorders as they appear

In the blood.
In secreted fluids.
On the skin and hair.
In the features of the face.
In the cellular membrane.
In the organs of speech.
Trachea.

Lungs.

Liver.

Spleen.

Omentum.

Kidneys, and

Urinary bladder.

In the heart and bloodvessels.

nerves and brain.

senses.

stomach and alimentary canal.

lacteal and lymphatic vessels.

glands.

tendons, muscles, and ligaments.

bones.

organs of generation of both sexes.

texture, figure, and situation of certain
parts of the body.

CHAPTER VI.

Of the diseases peculiar to women and children.

Of the means of lessening the pains of death,
diseases which have resisted the power of me-
dicine.

LECTURE II.

ON THE CHARACTER OF DR. SYDENHAM.

Delivered December 9th, 1793.

GENTLEMEN,

I HOPE it will not be thought foreign to a course of lectures upon physiology, and clinical medicine, to deliver a few observations upon the character of Dr. Sydenham. This illustrious physician, has been admired and celebrated, not only by his countrymen, but by most of the nations in Europe. He revived the industry of the ancients in collecting and recording facts;—he wrote from nature, or rather nature wrote through him;—he combated most of the errors, both in theory and practice, of the age in which he lived—and finally, he produced a complete revolution in medicine, which, involved in its consequences, a new era in the life and happiness of the human race.

In this humble and remote tribute, in point of time, to the memory of Dr. Sydenham, I shall first take notice of his character as a PHYSICIAN, and afterwards of his character as a MAN. In both views, he will appear equally worthy of imitation, and praise.

From the short records of his life, which have been published by the different editors of his works, it appears that his education in academical learning and medicine, was perfectly regular. He became a scholar at Oxford, and a doctor of medicine in the university of Cambridge. I mention these facts in order to refute an opinion which has been introduced by some lazy and illiterate practitioners of physic, that he was indebted wholly to intuition for all his knowledge in medicine. Men may become wise and distinguished by meditation, or observation in the science of morals and religion, but education and study are absolutely necessary to constitute a great physician. It is true, Dr. Sydenham did not adopt, or follow the errors of the schools in which he had been educated, but by knowing them thoroughly, he was able, more easily, to examine and refute them.

It appears, from many parts of his writings, that he was well acquainted with the works of Hippocrates, and that he had studied the systems of all his cotemporary physicians.

But the preeminence of his character as a physician arose from the following circumstances:

1st. He carefully studied the climate in which he lived, and faithfully observed and recorded the influence of the seasons upon the human body, in predisposing it to diseases, and in varying those diseases in different years.

2d. He observed and recorded with an accuracy that has never been exceeded, the symptoms of

acute and chronic diseases. He seems to have looked at nature in her operations in morbid bodies with a microscope. No deviation from health has escaped him, and hence the histories of diseases which are to be met with in all our modern authors, are correct and perfect, only in proportion as they are copied from Dr. Sydenham.

3d. He distinguished, with uncommon care, the different habits and constitutions of his patients, and instead of prescribing the same medicines in all diseases of the same nature, he prudently varied his prescriptions with the strength, age, and sex of his patients.

4th. He marked, likewise, with great care, the influence of different seasons upon the same disease, and varied his practice accordingly. Hence, he tells us, that the dysentery, which yielded to the simple remedy of *whey*, in the year 1669, required a very different treatment in the succeeding year, and even in the cold weather of the same year.

5th. He observed and recorded, very accurately, the influence of epidemic diseases, upon each other. He established, by a great number of observations, as an axiom in medicine, that two epidemics, of *unequal* force, could not long exist in the same place, at the *same* time. His words upon this subject are very remarkable. Speaking of a symptomatic pleurisy, which sometimes accompanied a slow fever, in the year 1675, and which had been injudiciously treated, by bloodletting, by some of those physicians who prescribe for the *name* of a disease, he

says, "Whoever, in the cure of fevers, hath not always in view the constitution of the year, inasmuch as it tends to produce some particular epidemic disease; and likewise, to reduce all the cotemporary diseases to its own form and likeness, proceeds in an uncertain and fallacious way."* But the accuracy of Dr. Sydenham, in his observations upon epidemics, did not end here. He clearly proves, that where the monarchy of a single disease was not immediately acknowledged, by a sudden retreat of all cotemporary diseases, they were forced to do homage to it, by wearing its livery. It would be easy to produce many extracts from his writings, in support of this assertion. I shall introduce but one or two of them. A fever, accompanied by a dry skin, had prevailed for some time in the city of London. During its continuance, the regular smallpox made its appearance. It is peculiar to the smallpox, when of a distinct nature, to be attended by irregular sweats before the eruption of the pock. The fever which preceded it, now put on a new symptom. It was attended by sweats, in its first stage, exactly like those which accompanied the eruptive fever of the smallpox.† This despotism, of a powerful epidemic, extended to the most trifling indispositions. It even blended itself, Dr. Sydenham tell us, with the commotions excited in the system by the suppression of the lochia, as well as with the common puerperal fever. The influence of this observation was truly important in practice. It led him to pur-

* Wallis's edition, vol. i. p. 340. † Vol. i. p. 352.

sue the reigning epidemic through every tract of its dominions, and to treat those diseases with which it had blended itself, with the same remedies, that he did the original disease from which their peculiar symptoms were derived. Having fixed his eye steadily upon a single epidemic, by the adoption of the law of epidemics which has been mentioned, he did not suffer himself to be seduced from a fixed and successful mode of practice, by any new shape or form of the prevailing disease. Hence we find him treating the dysentery of the year 1669, with the same remedies that he had used in the continual fever of the same year, and with the same happy issue. Even the dry gripes are resolved by him into a modification of an epidemic dysentery, and treated successfully with the remedies usually administered in that disease.

6th. In investigating the character of an obscure epidemic, he took a retrospect of the epidemics which preceded it. He reviewed the remedies which had been used in them with success, and applied them to the reigning disease. It was in this way, he tells us, that he acquired his knowledge of the nature of the plague. It had been preceded by pleurisies, quinsies, and an inflammatory pestilential fever, all of which had yielded to plentiful bloodletting. He perceived that the constitution of the air, which produced those diseases, was not changed. He applied, therefore, the remedy of copious bleeding to the plague, and if its efficacy was not universally suc-

cessful, it was owing to the prejudices which were excited against it, by his cotemporary physicians.

7th. He observed the diseases which succeeded the plague to partake of a portion of its malignity, and he accommodated his remedies to it. By his important record of the violence of diseases which preceded and followed the plague in London, he has established the truth of a necessary and immutable connexion between a malignant constitution of the atmosphere, and pestilential fevers in every part of the world.

8th. In a new and difficult epidemic, he observed, carefully, the hurtful as well as salutary effects of his remedies, and thereby acquired a knowledge of the character of the reigning disease. For example, he found that hemorrhages were most frequent in those cases of smallpox, where cordials were administered, and hence he was led to conclude that the disease was not of what is called a putrid, but of an inflammatory nature, and that the spontaneous discharges of blood, the petechiæ and other symptoms of supposed putrefaction, were all the effects of a sudden, violent, and rapid inflammatory action produced by the stimulus of the contagion of the smallpox, upon the sanguiferous system.

Having enumerated some of the leading principles of Dr. Sydenham, as far as they relate to the knowledge of diseases, I shall proceed next to mention his remedies, together with some of those peculiarities in his mode of administering them, which have contributed to establish, and perpetuate his fame.

Previously to the time of Dr. Sydenham, the cure of diseases was left chiefly to nature. She was aided only in the business of destroying human life, by cordial and alexipharmic medicines, and by impure and warm air. Dr. Sydenham first arrested her in her long, and destructive career, and took the treatment of *acute* diseases entirely out of her hands. Most of his medicines are artificial, and his practice in most diseases, is a war against nature. He trusts her in no case, except in those in which it is impossible for her to do harm, and then he substitutes the term *time* for her ancient name. That bold and vigorous act of reason, which first banished human sacrifices from religious worship, did not deserve more praise from mankind, than Dr. Sydenham deserves from physicians of all ages, for having deposed the power of nature in medicine, and thereby put an end to the folly and mischief, which had arisen from a supine and blind attachment to her deadly operations.

We behold Dr. Sydenham now upon an eminence which no physician had ever ascended before. Having parted with a slow and treacherous auxiliary, he relies upon the resources of his own fertile and original mind. Something like a new creation rises up before him. His remedies are either altogether *new*, or used in a manner unknown in the former annals of medicine.

The first of his remedies that I shall mention is COOL AIR. He applied it first in the treatment of the smallpox. Nothing could be more opposed to the prevailing theory of that disease. The operations of

nature tended to throw the morbid matter of the smallpox upon the skin. The operation of cool air tended to repel this matter, upon the vital parts of the body. How great must have been the intrepidity of that mind, that could adopt a remedy so opposed to the common sense of mankind, and how acute must have been that genius that could reconcile a practice so apparently absurd, with the true principles of the disease! Truth in this as well as in a hundred other cases in medicine seems to consist in a total renunciation of the *first* operations of reason. The success which attended the application of cool air in the smallpox, led Dr. Sydenham to advise it in the cure of all fevers of great morbid action. Hence we find him in every part of his works, recommending to his patients, to lie as little as possible in bed, thereby to expose the body to the constant action of cool air.

2. DIET constituted a second part of the *materia medica* of Dr. Sydenham. This was in no instance left by him, to accident, or regulated by the appetite of his patient. Its quality, and quantity, were both fixed with as much care, as his doses of emetic or purging medicines.

3. The third and next remedy which was used by Dr. Sydenham was BLOODLETTING. He acknowledges himself indebted to Botallus a French physician who flourished about the year 1580, for the boldness and success with which he used it. Its efficacy in inflammatory fevers is the natural result of their proximate cause. In the use of this remedy

he aimed not only to save life, but to shorten the duration of diseases, and to deliver the system from the lingering complaints which generally follow their imperfect solution.

The quantity of blood drawn by him was regulated wholly by the force of symptoms. In his recommendation of bleeding in the plague, he advises that it should be copious, or not used at all, for says he, "Either take the cure wholly out of the hands of nature, or leave her wholly to her own operations." Blind, and accidental as these may be, they are often more salutary where their force is unimpaired, than when they are weakened and diverted by the divided aids of art.

4. VOMITS, and PURGES form a fourth part of the remedies of Dr. Sydenham. After the use of these, we find him commending *sweating* as a proper remedy in diseases of a pestilential nature. The effects of all the evacuations which have been mentioned, whether obtained by the lancet, or by emetic, cathartic, or sweating medicines, are very remarkable. Instead of weakening, he asserts, that they uniformly restored the vigour and activity of the system. This will not surprise those physicians who have been in the habit of distinguishing between the *oppressed*, and *exhausted* state of the body, or to use more modern terms, between what is called indirect and direct debility. The former is removed in its first stages, most speedily and most effectually by evacuating remedies, while the latter yields only to such as are of a stimulating nature. THE MEDICINES

principally relied upon by Dr. Sydenham were BARK, OPIUM, and MERCURY. He frequently prescribed medicines of less efficacy, but these appear to be little else, but peace offerings to the prejudices of his patients, or to the arbitrary and fashionable exactions of the apothecaries. In the manner of exhibiting each of the remedies and medicines, which have been mentioned, he discovered as much sagacity, as he did in the selection of them.

He proportioned their force exactly to the state of what has since been called the excitability of the system. In fevers of moderate action in the arteries, he began with cordials of a feeble stimulus, and proceeded gradually to such as were more active. With the same regard to the state of the system, he sometimes substituted common bitters for the *bark* with success, in the cure of intermitting fevers. He perfectly understood the nature and operation of *opium*. He calls it "a most excellent cordial, perhaps the only one that has yet been discovered" and a "*strengtheners*" of the system. He accuses it in the beginning of fevers of producing delirium, but advises it in the close of the same fevers to remove that alarming symptom. He prescribes it in dysenteries of but feeble morbid action in the system, but forbids it in the same disease when it partakes of much inflammatory diathesis. He severely condemns the practice of dosing sick people who labour under diseases that are considered as incurable, with a far-rago of useless and nauseous medicines, and happily compares them to the "pompous garlands with

which beasts are crowned, just before they expire in sacrifices."

Hitherto I have only mentioned Dr. Sydenham's remedies for acute, and particularly for febrile diseases. It remains now that I mention his remedies for such as are of a chronic nature. These consist chiefly of *moderate bloodletting* when attended by plethora, *steel* and *exercise*. His principal dependence was upon the last of those remedies. His encomiums upon riding on horseback in hypochondriac and consumptive diseases have been quoted by many hundred authors, and many thousand invalids have subscribed to the truth of them. If any thing could tempt to a belief in animal magnetism, it would be the wonderful effects of this mode of exercise in the above diseases.

I cannot dismiss the medical character of Dr. Sydenham, without taking notice of his theories of diseases. Many of these are erroneous, but some of them I believe to be true. I adopt in the fullest sense his theory of what are called putrid diseases, and am satisfied that they are the effects of an excess of that stimulus which produces what is called inflammatory action in the system. I adopt likewise his opinion of an additional stimulus being imparted to the atmosphere during the prevalence of malignant fevers. He derives it from a mineral exhalation from the bowels of the earth. Time will sooner or later I have no doubt discover its source. It is sufficient for the honour of Dr. Sydenham to have pointed out a fact, the truth of which has been confirmed by corres-

ponding changes in the whole vegetable and animal creation. The doctrine of concoction in fevers which he derived from Hippocrates, and his opinions of the causes and symptoms of diseases being produced by morbid matter, have all been rejected from our systems of pathology as hypothetical, and unfriendly to regular and successful practice. Yes; in the systems of common physicians they are so, but they had no unfriendly influence upon the practice of Dr. Sydenham. It was judicious and successful under every theory by which he prescribed. It resembled in this respect the rare morality of those philosophers, who conform in their lives to the precepts of christianity, in the belief of all the doctrines of the pagan or mahometan religions.

After all that has been said of Dr. Sydenham's theories, I will venture to assert that there is much less error in them, than there is in any system of medicine that has been published in the course of the eighteenth century.

I come now to say a few words upon Dr. Sydenham's character as a MAN. This part of our subject should command our closest attention, for the highest attainments and reputation in science, can never make a physician truly reputable, who does not add to them the virtues of a fair moral character.

It appears from the concurring testimony of all cotemporary writers, that Dr. Sydenham was a man of the most exemplary morals, and that benevolence, was his predominating virtue. He loved the whole human race, and sympathized with every species of

human misery. Hear his benevolent creed in his own words: "It is not acting the part of a *good* man (says he) to convert to his private advantage what might prove eminently serviceable to the public, nor of a *wise* man to deprive himself of the blessing he might justly expect from heaven, by endeavouring to promote the public good."

His sympathy with human misery will appear from the manner in which he mentions a certain class of persons whom not only disease, but vice, had, by a mistaken interpretation of the spirit of christianity, excluded from the pale of christian charity. In his treatise upon the venereal disease, he says, "I have met with several persons who have not scrupled to assert, that the cure of the venereal disease should be kept a secret, in order to deter the inconsiderate from vitious practices by the apprehension of succeeding punishment. But I cannot be of their opinion, for there would be very little room left for charity, or doing good offices, unless the misfortunes which thoughtless persons bring on themselves, were to be alleviated with humanity and tenderness. It belongs to God to *punish* the offence, but it is our duty to *relieve* the distressed." The experience of succeeding generations, has discovered, that Dr. Sydenham's opinion and conduct with respect to venereal patients are more calculated to eradicate the disease, than the rigid practices of pharisaical morality. In the venereal hospital at Louvain, no patient is admitted until he has submitted to corporal discipline from the church.

In consequence of this severity towards those unhappy people, the disease prevails more in that city than in any city in Europe. In London, where the doors of humanity are open to misery of every kind, whether it be innocent or guilty, the venereal disease is less common, and instances of mortality from it, are seldom known. From these facts, it would seem as if evil could finally be annihilated, only by being forgiven.

But the benevolence of Dr. Sydenham was not confined to the age in which he lived. He included posterity in all his efforts to advance the happiness of mankind. Hence we find him making the following noble declaration in his letter to Dr. Brady. "It is the duty (says he) of a good man to preserve his fellow creatures, and to instruct others to save them from death, after his own decease, nor can any thing be more inhuman and detestable than to insinuate a disregard or unconcern for whatever misfortunes may happen to mankind after our death." Posterity to a philosopher, is what the day of judgment is to a christian. It appears from many parts of Dr. Sydenham's works, that he often looked forward to distant generations to do justice to his remedies and character. Speaking of the use of the cool regimen in the smallpox, he boldly asserts that "it *will* prevail after his decease, notwithstanding the ill grounded prejudices of those who oppose it;"* and again he says, that "the success which had attended his

* Vol. i. p. 152.

inquiries had very much encouraged him, and that his successors would undoubtedly vouch for his veracity and honesty." In this bold prediction he was not mistaken, for his writings, like the dry bones of the prophet imparted life, after he descended into the grave; and millions of the generations which have succeeded him, thus vouch for the safety, and success of this practice.

The candor of Dr. Sydenham discovers itself by the readiness, with which he acknowledges his having not only mistaken a new fever for a bastard peripneumony, but having given a printed account of it to the world.* Such instances of magnanimity are very rare in all sciences, and from the influence which they have upon both interest and reputation, are less common among physicians than men of other professions. But Dr. Sydenham was elevated, by his virtue, above the allurements of wealth and fame. Hence he tells us, "that he had rather discover a certain method of curing the slightest disease, than to accumulate the largest fortune;" and again, speaking of those physicians who acquire great estates by unlawful or sordid means, he says, "I do not envy them the enjoyment of what they have acquired, but would have them remember, that the lowest mechanics do sometimes leave greater fortunes to their children; and yet in this respect they are no way superior to brutes, who make the best provision they can for themselves,

* Vol. ii. p. 316.

and their issue." His contempt of fame appears in the following amiable declaration. "Upon deliberate and equitable reflection I find it better (says he) to assist mankind than to be commended by them, and highly conducive to tranquillity of mind; popular applause being lighter than a feather, or a bubble, and less substantial than a dream." And again, in his dedication of his treatise upon the gout and dropsy to Dr. Short, he says, "Provided I discharge the duty of a good citizen, and serve the public to the prejudice of my private interest, what matters it if I gain no reputation thereby? for, upon due consideration, my endeavouring to secure a character, who am now advanced in years, will in a little time be like providing for a nonexistence; for what will it avail me after my decease, that the eight letters which compose my name, should be pronounced by those who will be able to frame no idea of me in their minds."* It is only by preferring the life of a fellow creature to interest, and reputation, that a physician can be in a condition to do his duty to his patients.

It may not be amiss to add to this account of Dr. Sydenham, that his manners were as gentle as his morals were pure. This is evident from the testimony of Mr. Kendrick, who speaks of his civilities to him in the highest terms to Dr. Cole.

In reviewing the talents and virtues of Dr. Sydenham, we are ready to congratulate the age which enjoyed the benefit of his labours, and to suppose,

* Vol. ii. p. 179.

that his life was a succession of private happiness and public honour. But this was far from being the case. He was envied by some, hated by others, and slandered by most of his cotemporary physicians, who resided in the city of London. It appears from his writings, that he was charged with murdering his patients by repeated and plentiful bloodletting, and by large doses of bark; for this noble medicine underwent the same ordeal from ignorance and prejudice, that large doses of mercury and jalap are now undergoing, from some of the physicians of the present day. What other calumnies were propagated against Dr. Sydenham cannot be ascertained, for he passes over in silence even the names of his enemies, thereby depriving them of the only chance they had of descending to posterity. To the few medical friends whom he possessed, he was affectionate and grateful. The name of Dr. Goodall has been rendered coextensive with his own, by his panegyric upon his probity and skill. At a time when Dr. Sydenham's remedies of bleeding, and cool air for the petechiæ and bloody urine, which frequently occur in the smallpox, were very generally reprobated by his medical brethren, Dr. Goodall used them with success, and upon the favourable issue of a *single* case, established by his public testimony their safety, and efficacy in the city of London. Dr. Sydenham begins his eulogium upon him, by speaking in the highest terms of the cure his friend had performed, and then adds, " This gentleman, at a time when few durst assert that I had made the least discovery,

or improvement in physic, defended my reputation against those who injured my character, with as much warmth as a son would do that of a father. But though I am so much indebted to his goodness, I would nevertheless have concealed his praises if they were not due to his merit, it being equally blameworthy and false, to commend or censure without cause. Let no one be displeased with me therefore for affirming, that he is a man of as much probity as I have ever known, and how excellent a physician he is, will shortly appear (if his life be prolonged), as he hath with great judgment read the writings both of ancient and modern physicians, and with singular prudence and industry investigated the nicest rules of practice, without a knowledge of which no man can practise the art with reputation; so that his patients will find him an able and successful practitioner." But Dr. Sydenham's gratitude to Dr. Goodall does not end here. He erects a monument to his merit in the dedication of his "Essay on the Rise of a new Fever." "I beg your acceptance," says he, "of this performance, because you are my intimate friend, and have constantly defended me against all my opponents, not so much for my own sake, as out of an inherent generous disposition, and great integrity of mind, which induced you to support me in what you knew was truth, though at a time when most of the faculty exclaimed against me. And as I have not the *least* dependence upon you, I cannot be supposed to flatter you, by openly professing as I do (to speak within compass) that

there is not a better physician living, and that I never knew an honester man."

There is a certain subordination in the duties of morality. It is our duty to live in peace with all men, but when this cannot be effected, but at the expense of truth, and the lives of our fellow creatures, our obligations to preserve peace with all men, are cancelled and destroyed. Such, gentlemen, appears to have been the opinion of Dr. Goodall; and, hereafter, when a man creates enemies by supporting the interests of virtue and humanity, let him be called a Dr. Goodall.

I have taken notice of Dr. Sydenham's contempt of wealth and fame. This singular trait in the character of a philosopher and a physician, will cease to excite our surprise, when I add, that he was a truly religious man, and that he looked forward, not to the admiration and praise of posterity, but to the approbation of his Creator, and the substantial riches of a future world. He every where mentions the Deity in terms of the most profound veneration, and seems to entertain the most expanded ideas of his wisdom, power and goodness. That such contemplations should have produced all the amiable virtues which have been described in Dr. Sydenham's character as a man, is nothing new in the history of the human mind, but I am disposed to ascribe to his sublime, and just conceptions of the Deity, much of that force and extent of mind which enabled him to produce a revolution in medicine. Poets, we are told, acquire great ideas from a fa-

miliarity with mountains, oceans, and other majestic works of nature; and mathematicians become correct in their modes of reasoning, by habits of demonstration, which are obvious to their senses. In like manner, may we not conceive that the faculties of the mind, when long and often stretched by contemplating the immensity of the Supreme Being, may be fitted by it for discovering and embracing truth in all its extent upon other subjects? It is somewhat remarkable, that the greatest improvements that have been made in science, in Great Britain, have been by men who had previously increased the dimensions of their minds by philosophical and devout contemplations on the Creator of the universe. You will readily anticipate the names of these men. They were Bacon, Newton, and M'Laurin, in natural; and Locke, Hartley, and Reid, in metaphysical science.

There are two things in the history of Dr. Sydenham, which have been supposed to cast a shade upon his moral character. The first is his desertion of the city of London, upon the appearance of the plague, in the year 1664. This would certainly have been, not only a weakness, but a vice, in Dr. Sydenham, had not his subsequent conduct more than atoned for it. The cloud which obscured his sun, soon passed away, and his flight served only to afford him an opportunity of acquiring fresh honours in medicine. In spite of a feeble constitution, shattered by repeated attacks of the gout, and deaf to the entreaties of an affectionate and needy

family, he returned to London, while the plague, to use his own words, still "raged violently," and in time to apply to its cure, those principles which he had previously established in the malignant and confluent smallpox. Thus, like Achilles, he came forth from his short retirement, rallied the hopes of a desponding city, vanquished the destroyer of his fellow creatures, and by his incomparable writings, has ever since dragged him, in triumph, at his chariot wheels.

The second charge against Dr. Sydenham's character is of a more serious nature, and comes from a quarter that gives it peculiar weight. He accuses himself, not of neglecting his patients, nor of oppressing them by exorbitant fees, but of doing violence to his conscience by submitting to be dictated to, in consultations, contrary to his own judgment, and thereby becoming accessory to the death of his patients. Speaking of the cool regimen in the smallpox, he says, "I have used this method in my own children, my nearest relations, and all those whom I have attended, and am conscious of no fault, unless it be yielding, sometimes, to persons of a contrary opinion, to avoid the imputation of moroseness and obstinacy." This confession from Dr. Sydenham is replete with instruction to physicians and patients. It should teach the former to adhere conscientiously to the dictates of their judgments, where the life of a fellow creature is at stake. The latter should learn from it, never to admit physicians of opposite principles, and practice, into their

sick room; for whatever is prescribed by them, is seldom the result of the judgment of either, and generally does harm, or leaves the disease to go on in its tendency to extinguish life.

Such, gentlemen, was the character of Dr. Sydenham as a physician, and as a man, and this, many of you can witness, is not the first time I have recommended him in both capacities, to your imitation.

The awful events which have taken place in this city, since our last meeting in this room, have furnished me with many additional reasons to value and recommend his excellent works. It is as foreign to my inclinations, as it is to the subject of this lecture, to mention the opinions and practice of all the physicians of Philadelphia, during the prevalence of our late epidemic. I shall mention the conduct of those only who fixed upon Dr. Sydenham as the model of their practice. It was by Dr. Sydenham they were led to renounce the *name* of the disease, and to conform their prescriptions to our climate, to the changes in the weather, and to the state of morbid action in the system. It was from Dr. Sydenham, they learned, that no two epidemics, of unequal force, could prevail in our city at the same time, and that after the fifth of September, there was no febrile disease that was not derived from the miasmata which produced the yellow fever, or that was not blended with it; and hence in no instance did a yellow colour of the skin, a black vomiting, or a hearse at the door, on the fifth or seventh day of

the disease, convict them of error or deception. It was by following the bold example of Dr. Sydenham, they early got into the rear of the disease, and these discovered by a retrospect of the epidemics which preceded it, and by a close attention to the symptoms which accompanied it in its first stage, that instead of being a putrid, it was a fever of the highest possible inflammatory nature. It was from Dr. Sydenham they learned to distinguish between the *oppressed* and *exhausted* state of the system, and that they beheld with equal surprise and delight, the strength of their patients increased by every evacuation of blood or bile. It was by Dr. Sydenham they were prepared to observe the wonderful efficacy of those cheap and universal remedies, *cool air* and *cold water*; and lastly, it was by Dr. Sydenham they were taught the destructive effects of bark, wine, and laudanum in every stage of the disease. If, therefore, many thousands of the citizens of Philadelphia owe their lives to the rejection of those medicines, and to the liberal use of remedies of an opposite character, let the physicians who administered the latter, come forward and deposit their trophies thus publicly upon the tomb of this illustrious physician.

“ With every healing plant, his grave adorn,
“ Saviour of many millions, yet unborn.”

LECTURE III.

ON THE CAUSES OF DEATH, IN DISEASES THAT ARE NOT INCURABLE.

Delivered November 26th, 1798.

GENTLEMEN,

OUR city has again been afflicted by a malignant bilious fever. Its mortality has been much greater, in a given number of sick people, than in former years. In meditating upon the causes of this extraordinary mortality, I was led to contemplate the causes of death, not only in our late epidemic, but in other diseases which are not incurable, for the malignant bilious or yellow fever, is not necessarily a mortal disease. In considering this subject, the first thing that occurred to my mind, was the small proportion of people who die of diseases that are acknowledged to be incurable. In examining the bills of mortality, of all countries, how few people do we find die of aneurisms, epilepsy, internal cancers, and casualties, compared with the number of persons who perish from fevers, and other diseases which are admitted to be under the power of medicine. Perhaps the proportion of deaths from the former, compared with the deaths from the latter diseases, does not amount to more than one in an hundred. Ninety-nine persons, of course, die who might be

cured by the proper application of remedies which are within the reach of reason, and power of man. The business of the present lecture, shall be to point out the various causes which render the means of saving life, that are known or attainable by us, thus abortive. The discovery of these causes will open a wide field for speculative truth, as well as practical virtue and happiness.

In considering the causes of death in diseases which are not incurable, I shall mention

I. Those which are derived from physicians.

II. Those which arise from the conduct of sick which people, and

III. Those which arise from the conduct of their attendants and visitors.

1st. Under the first general head, I shall first mention *ignorance* in a physician, arising from original incapacity, or a want of proper instruction in medicine. But where there have been both capacity and instruction, there is sometimes an obliquity in the human understanding which renders it incapable of perceiving truth upon medical subjects. A mind thus formed, may acquire learning, without knowledge, and it may even acquire knowledge upon all subjects, except in medicine. But where there are talents that are in every respect equal to the profession (and these are by no means so rare as has been commonly supposed,) there is often a deficiency in their application. This deficiency extends to reading and observation. Few physicians read after they enter into business, and still fewer profit by their observations.

It is from the neglect of these two sources of medical knowledge, that we consider so many cases as new, that have existed a hundred times before, and that we prescribe the same remedies in all countries and seasons for diseases of the same name. No epidemic has the same symptoms, or will bear the same treatment in a warm and cold climate. The muslin dresses of the East and West Indies, would not be more unsuitable for the citizens of Philadelphia, in the autumnal months, than the remedies of a tropical climate are for the diseases of those months in the middle states of America.

But again, epidemics often differ so much in their character, in the same climate, in different years, as to require a difference of treatment. The yellow fevers of 1793, 1794, and 1797, in our city, yielded, in most cases, to copious bleeding. They were, moreover, aggravated in those years, in every case, by bark and laudanum. In the yellow fever of the present year, the lancet was used more sparingly, and bark and laudanum were administered, in some cases, with success. Lastly, the same epidemic differs in the *same* season in different kinds of weather. This remark was obvious in our late fever. Copious bleeding was forbidden, in almost every case, in the month of August. Emetics at this time had a much happier effect. After the 20th of September, and during the whole month of October, copious bleeding, in many instances, supplied the place of emetics, and produced, when properly used, a safe and easy termination of the disease.

2d. A cause of death in diseases that are not incurable, arises from the *negligence* of physicians. This negligence extends to their delays in not obeying, immediately, the first call to a patient, to their inattention to all the symptoms and circumstances of a disease in a sick room, and to the time of their visits not being accommodated to those changes in a disease in which remedies of a certain character can be applied with effect. Negligence from the first of those three causes has occasioned the death of many patients. A conduct the reverse of that which has been mentioned, is happily commended by Dr. Johnson, in his friend and physician, Dr. Levet, in an elegant ode to his memory. The talents of this physician, were said to be moderate, but his success was considerable in his extensive practice among the poor, owing chiefly to his early and immediate compliance with the calls of his patients.*

3. Physicians render curable diseases mortal, in many instances, by their connecting the measure of their services to the sick, with pecuniary considerations. This is one reason why more of the poor than of the rich, die of mortal epidemics. They are in general either deserted by physicians altogether, or attended in such a desultory manner, that medi-

* "No summons mock'd by *chill* delay,
"No petty gain disdain'd by pride,
"The modest wants of every day,
"The toil of every day supply'd."

cine has but a slender chance of doing them any service. Extravagant charges for medical advice, and attendance, have, in several cases that have come to my knowledge, produced such delays in sending for a physician, as have given a curable disease time to advance to its incurable stage. These delays, though apparently originating with patients, should be traced wholly to the conduct of physicians.

4th. Forgetfulness in a physician, to visit his patients, or to send them medicines at regular and critical hours, has occasioned the death of many persons, in diseases that might, under other circumstances, have been cured.

5th. A preference of reputation, to the life of a patient, has often led physicians to permit a curable disease to terminate in death. This disposition is more general than is known or supposed by the public. The death of a patient, under the ill directed operations of nature, or of what are called lenient and safe medicines, seldom injures the reputation or business of a physician. For this reason many people are permitted to die, who might have been recovered by the use of efficient remedies.

6th. A *sudden indisposition* attacking a physician, so as to prevent his regular and habitual visits to his patients, has often been the cause of death, where a favourable issue of a disease would otherwise have taken place. This source of mortality is most obvious in general epidemics, when the disease is dangerous, the patients numerous, and the time of brother physicians so completely occupied, as to pre-

vent their affording the persons who have been deserted, the least substituted aid.

7th. Where none of the causes of mortality which have been enumerated have occurred, patients are sometimes lost in curable diseases by fraud and uncertainty in the composition and doses of medicines, by which means they produce greater or less effects than were intended. Many persons have died from an excess in the operation, or from the inertness of a dose of James's powder. The tartarized antimony has as often deceived the hopes of a physician. It was to obviate these evils that Mr. Chaptal expressed a wish that "Those heroic remedies which operate in small doses, should produce constant and invariable effects through all Europe," and wisely proposed that "Governments, which do not apply their stamp of approbation to objects of luxury, until they have passed a rigid inspection, should prohibit traders from circulating, with impunity, products upon which the health of the citizen so essentially depends."*

8th. The prescriptions of physicians, written in a careless and illegible hand, have sometimes produced mistakes in the exhibition of medicines which have been the means of destroying life in diseases that had no tendency to death. Verbal prescriptions have occasionally been followed by the same unfortunate issue. The bare recital of these facts should render perspicuity in writing and speaking, an es-

* Vol. ii. p. 261, 262.

sential part, not only of the learning, but of the morality of every physician.

We proceed, in the second place, to mention those causes of death, in curable diseases, which originate with sick people; and here we must begin, as under our former head, by mentioning *ignorance*. Medicine has, unhappily for mankind, been made so much a mystery, that few patients are judges of the talents, or qualifications of physicians; hence the bold and the artful are often preferred to the modest and the skilful. The desire of health, like the love of money, it has been said, levels all ranks and capacities; and, however much, what is called a liberal education, may enable men to form correct opinions upon certain subjects, it gives them no preeminence in medicine. In this science, the rich and the poor, the learned and the illiterate, are actuated, in common, by the same vulgar prejudices. Our late epidemic furnished many proofs of the truth of these remarks. An opinion had become current and popular, that the disease was aggravated by harsh remedies, and that it was to be cured by the operations of nature, aided by the most simple medicines. To the influence of this opinion must be ascribed, in part, its greater mortality than in former years. Patients who suffered by this species of ignorance, not only renounced all knowledge upon other subjects where innumerable analogies suggested the reasonableness of accommodating means to ends, but they rejected the analogy of a practice in diseases which habit had long made familiar to them.

What patient is so ignorant as not to use more powerful remedies in a pleurisy than in a common cold? and yet the same patient cannot comprehend that a yellow fever is to a mild remittent, what a violent inflammation of the lungs, in a pleurisy, is to a moderate affection of the same parts in a catarrh.

2d. *Prejudice* in patients, in the choice of a physician, has sometimes rendered diseases mortal, which are not incurable. This prejudice is either of a religious or a political nature. The former leads men to prefer physicians of their own sect; the latter, of their own party, without any regard to talents or knowledge. It is because our profession is a degraded one, that gentlemen of other professions usurp the right of thinking for us upon political questions. The world does not treat the profession of the law with so much disrespect. Eminent talents at the bar command business from men of all parties. The reason of this difference in the conduct of mankind towards the two professions is, that the value and danger of property is better known, and more sensibly felt, than the value and danger of health and life.

3d. *Fashion* has a powerful influence in determining sick people in the choice of a physician; and as the leaders in it, are generally as ignorant as those who follow them, of the true characters of physicians, men are preferred, who add, by their ignorance to the mortality of curable diseases. In Europe the common people follow the example of the

privileged orders in their choice of a physician. In this country, wealth gives the tone to medical reputation. It is remarkable that the effects of patronage, whether it be derived from titles or money, are as little influenced by success in the treatment of diseases as they are by talents, for it has frequently been observed that the most fashionable physicians are the least successful in their practice. Nor does a general knowledge of this fact affect the business of such physicians while they retain the favour of the great. This imitative disposition in human nature extends to other things as well as to the preservation of health. It discovers itself in acts the most opposite to the common feelings and principles of action in man. It leads men, in some instances, to delight in deformity. The humpback of Alexander was aped by all his officers. It does even more. It leads men to covet diseases and pain. Dionis tells us in his surgery, that after he had cut Lewis XIV, for a fistula in ano, he was called upon by a great number of the nobility of France to examine whether they had not the same loathsome disorder, and he adds, that they always appeared to be offended when he informed them they were not affected with it.

4th. Many patients die of curable diseases by neglecting to apply in *due time* for medical aid. Cancers and consumptions have been called incurable diseases. This is far from being true. If the tumors which precede nearly all cancers were extirpated immediately after they were discovered, and

if the premonitory symptoms of consumption were met by proper remedies, we should seldom hear of persons dying of either of those diseases. Our newspapers frequently told the public that our late epidemic baffled the skill of our physicians. This assertion was not well founded. Most of our physicians declared that the disease, after the *first* day, was incurable. In this they discovered a just knowledge of it; and in this knowledge, skill consists. It should rather have been said, that the disease baffled the hopes of patients who supposed their indisposition was occasioned by a trifling cold, and neglected to send for a physician at the only time in which it was under the power of medicine. Few cases proved fatal under any mode of practice, where physicians were called in the *forming* state of the disease.

5th. The *neglect* in patients, to comply with the prescriptions of their physicians, has, in many instances, rendered diseases fatal, that might have been cured. It is from disobedience to our prescriptions, whether it be founded in ignorance of the danger of the disease under which sick people labour, or upon the calls of business or pleasure predominating over sickness and pain, or upon the unpalatable nature of certain medicines, or upon a dread of the pain of others, that we sometimes discover, after the death of our patients, medicines that would probably have saved them, upon a mantle-piece, or in the drawers of a dressing table. Patients, who recover, sometimes humorously insult their physicians, by telling them of the improper, and

even prostituted use to which they have applied their medicines. Sir Richard Nash was once asked by his physician, if he had followed his prescription —“ If I had,” said Sir Richard, “ I should certainly have broken my neck, for I threw it out of my window.” Fear has prevented, in many instances, the successful application of bloodletting in the cure of diseases. False delicacy, by restraining the use of clysters, has sometimes been attended with the same fatal consequences. The former weakness is the more mischievous, from its disguising itself under the apparent dictates of judgment.

6th. The neglect in patients to make use of the remedies of their physicians, at the *time*, and in the *manner*, in which they were prescribed, is a frequent cause of death in curable diseases. In acute indispositions, the cure often turns, upon a remedy being used, not only on a certain day, but at a certain hour. Purges, vomits, bleeding, blisters, sweats, and laudanum, have all their precise days, hours, and perhaps less divisions in time, of being useful; before, or after which, they are either ineffectual, or do harm. Our late epidemic furnished many proofs of the truth of this remark, more especially in the use of bloodletting. Few persons died of it where the prescription of the lancet was complied with in the early part of the first day of the fever; and few recovered, where it was used for the first time on the second, or on any other of its subsequent days. Its efficacy was most observable in its paroxysms. In its remissions, bleeding was less

proper, and sometimes hurtful. But patients not only injure themselves by neglecting to use remedies at the *time*, but by using them in a *different manner* from that in which they are prescribed. They take more, or less of their medicines, or they lose more or less blood, than was intended, and often at a time, when life and death are perched upon the same beam, and when the smallest particle of error gives it a preponderance in favour of the grave.

7th. The *indulgence* of the *appetite* by sick people for food and drinks, improper from their quality, or quantity, has often converted a curable, into a mortal disease. This cause of death occurs most frequently in diseases of a chronic nature, in which the appetite is unimpaired. Frederick II. of Prussia, appears to have died in consequence of his defeating, by his intemperance in eating, the efficacy of all Dr. Zimmerman's prescriptions. The gout would seldom prove fatal, if patients, afflicted with it, would be persuaded to abstain from wine and fermented liquors, in the remissions of its symptoms. In the year 1797, a supper of beef steaks and porter produced a relapse in a patient which carried him off in a few hours, after he had exhibited every mark of recovering from a violent attack of the yellow fever. In the course of the late autumn, I left a patient, in the evening, in whom I was happy to observe the usual symptoms of a favourable issue of the prevailing epidemic. The next morning I was met by his nurse, at the door of his house, who told me my

patient was dead and buried. The information was alike unexpected and distressing to me. I asked the nurse if he had eaten or drunken any thing besides the diet and drinks I had prescribed for him; she told me he had—that one of his friends had sent him two bottles of wine the night before, one of which he drank in the course of the evening—that he became delirious afterwards, and died at six o'clock in the morning. Possonier relates a similar issue of a yellow fever from a small quantity of wine being improperly given to a patient in the West Indies. The same author tells us the physicians who attended the naval hospital at Brest declared, that as many of their patients died of relapses, from improper diet, as from the original contagion of a fever, which destroyed several thousand people at that place, about the year 1746.

8th. *Fear* has often rendered diseases fatal, which would otherwise have yielded to medicine. The deadly influence of this passion is most observable in the plague and other mortal epidemics. It is often increased by the tolling of bells, by the noise of a herse, and by persons who are sick, hearing of the deaths of their friends and neighbours. The effects of fear are still more fatal when they are combined with superstition. An instance of death once occurred in my practice in a disease, which rarely proves mortal, from a presentiment of it having been excited by a previous dream.

9th. A *dread* of the expenses of medical services, has sometimes, by preventing an application to a

physician, occasioned death from diseases that might have been cured by a single dose of physic. The operation of this principle is much more extensive than is commonly supposed. It would be an improvement in charity, if a certain number of physicians could be supported at the public expense, on purpose to attend those persons whose narrow and appropriated incomes prevent their applying for early and constant medical aid. The dispensaries, which have lately been instituted in different parts of the world, have been the means of saving many lives. They would be much more useful, if physicians were rendered so independent by governments as to devote their time exclusively to them. I grant that avarice now and then prevents an early application for medical aid; but where this passion is the cause of this delay once, poverty, or scanty resources are the cause of it in an hundred instances.

10th. A peculiar irritability of temper has sometimes induced death in diseases, which, under other circumstances, might have been cured. Dr. Hector M'Clean relates the case of a British officer, who died of a sudden paroxysm of anger in the yellow fever, because his nurse refused to indulge him in plentiful draughts of wine and porter.

11th. Improper application to business and study, and riding out prematurely, have, in many instances, converted a curable, into a mortal, disease. Dr. Campbell, of Kendal, says he once lost a patient, after the crisis of a fever, by his sitting up a few minutes in his bed to answer a letter. I have known two in-

stances of death, from the impatience of sick people to enjoy the benefits of exercise and country air.

12th. An excess of delicacy, by disposing patients to conceal the nature and seats of their diseases, is sometimes the cause of their mortality. Of this, I have known two instances in this city, in ladies of great worth, and respectable connexions. One of them concealed a psoas abscess, and the other a cancer in her breast, not only from their physicians, but from their female relations, until they were beyond the possibility of medical relief.

13th. Love, debt, and guilt, which are seldom acknowledged by sick people, frequently unite with diseases of a mild nature, and render them incurable.

14th. Habits of secret drinking often give a fatal direction to diseases which are seldom mortal in temperate people. Of this, there are innumerable instances in every part of the world.

We come now to consider, in the third and last place, the causes of death, which arise from the conduct of the attendants and visitors of the sick.

1st. Under this head, I shall first mention the fatal effects of *consultations* between physicians of opposite medical principles. I have elsewhere borne a testimony against this mode of trading in the health and lives of our fellow creatures. Consultations lessen responsibility, and, by blending, render inert, or hurtful, modes of practice, which, if pursued separately, might have been successful: for it is a fact, that there are not only *different* modes of curing the

same disease, but that the same disease may be cured by *opposite* medicines. Next to the influence of improper consultations, under this head, I shall mention the conduct of nurses, as a frequent cause of the fatal issue of diseases. Far be it from me to blame indiscriminately this class of people. Many of them deserve praise for their humanity, and some for their skill in the management of the sick; but melancholy experience has taught us, that death is often the effect of the negligence, ignorance, and wickedness, which they discover in the following ways.

1st. They neglect to give sick people medicines, drinks, and diet, at the *time*, and in the *manner*, in which they are prescribed. I have reason to believe, I once lost a patient, from the failure of an emetic to produce the effect intended by it. I discovered, afterwards, that the nurse of this patient threw half of it into the fire, from a fear that the whole dose would work him to death. But further, nurses often neglect to change the body and bed linen of the sick. They keep them too hot, or too cold, or they give them too little, or too much cool air. However trifling these acts of negligence may appear, I believe they have, in many hundred instances, rendered diseases mortal, that might have been cured.

2d. Nurses frequently assist diseases in destroying life, by their ignorance. I prescribed bleeding in the second paroxysm of a yellow fever of the present year. In my visit to the patient, who was the subject of this prescription, the next day, I asked to look at his blood. His nurse told me, she had de-

clined having him bled, lest it should check a trifling sweat, which broke out soon after I left him. This patient died a few days afterwards, and I believe, chiefly from the shock given to his system by a paroxysm of fever spending itself without an evacuation proportioned to its violence.

3d. Nurses render curable diseases mortal, by robbing sick people of those drinks and aliments, that are prescribed for them. This vice is the parent of greater evils than either negligence or ignorance; for where the drinks, which are frequently of a spirituous nature, are taken by the nurses, the stupidity or intoxication, which is produced by them, leads them to treat sick people with cruelty, and thus to give a mortal direction to a simple disease.

4th. Nurses often desist from giving medicines in the most critical stage of diseases, from despair of their doing any good, or from a fear of their exciting unnecessary pain in our patients, in what they suppose to be the last moments of their lives. A knowledge of these facts, in the history of nurses, is highly interesting to a physician. He will seldom be successful, without a strict attention to their conduct. In cases of imminent danger, he will find a great advantage in rescuing his patients from their hands, and committing the care of them exclusively to a friend or a pupil who will faithfully comply with all his prescriptions.

2. Of the visitors of sick people, who contribute to render curable diseases fatal, I shall first mention physicians who are not sent for, and who obtrude

their visits, as friends. It will be impossible for patients to avoid asking them questions, and it will be difficult for them to answer them in such a manner as not to interfere with, or defeat, the plan of cure of the attending physician.

The late Dr. ——— would probably have survived the attack of the fever which destroyed him, had not his confidence, in the remedies which were prescribed for him, been weakened by several medical gentlemen, who paid him visits of friendship during his illness.

Visitors of another kind drawn from the neighbourhood, or from the circle of consanguinity, help to render simple diseases mortal, by their loud or long conversation, by their tales of sickness and death from similar diseases, by urging them prematurely or indelicately to settle their affairs, by sapping the confidence of sick people in their physician, by advising heterogeneous consultations, by dissuading them from the use of painful or disagreeable remedies, or by persuading them to make use of such as are pleasant, but feeble, and which they say have been effectual in supposed similar cases. I had once nearly lost a most accomplished female patient in consequence of some of her visitors having combined nearly all the offensive acts that have been mentioned, in her sick room. Her disease required frequent bleedings. One of her visitors implored her on her knees not to lose any more blood. Her entreaties were ineffectual. I persisted in bleeding her. To avoid the displeasure of her friends, who

continued to visit her, she obliged her nurse to conceal her blood in a closet as soon as it was drawn. This lady recovered, and now enjoys good health.

Under this head, of the causes of death in diseases not incurable, we must not pass over the influence of newspaper publications upon the practice and characters of physicians. The yellow fever of 1793 derived the principal part of its mortality from the publications in favour of bark, wine, and the cold bath; and the yellow fevers of 1797, and 1798, were rendered fatal in many hundred instances, by the public and intemperate abuse of those physicians who attempted to cure it by mercury and blood-letting.

Nor let me forget to mention here the fatal effects of the public controversies of physicians, even when conducted in a liberal manner, in converting simple, into incurable, diseases. The years 1793 and 1797, furnished many proofs of the truth of this remark; nor did the pernicious influence, of the ill timed disputes of those years, cease in our late epidemic. Physicians were in many instances employed with distrust; and there were some melancholy instances of persons perishing by the disease, under the direction of their own judgments, rather than commit themselves to the care of men, who had, by their dissensions, acknowledged the uncertainty of their profession. Some of those persons were so slightly affected, that they would have probably recovered under the most erroneous modes of practice that were used in the fever.

Thus have I pointed out the principal causes of death in diseases that are not incurable. If the operation of any one of those causes has been attended with fatal consequences, what must be the combined effects of them all?

Here gentlemen let us make a pause. Many useful reflections are suggested by the observations which have been delivered. I shall briefly mention such as are obviously connected with the subject of our lecture.

1. In the first place, let us do homage to the divine goodness. From what has been said, it is evident, that our Creator has provided us in the most ample manner with the means of health and life; and if they fail of producing their intended effects, it is only because they are rendered ineffectual, by the ignorance, folly and wickedness of man.

2. Let us duly appreciate the difficulties of a physician's studies and labours. He must embrace and control as many objects in contending with a disease, more especially if it be of a dangerous nature, as a general does in arranging his troops and fighting a battle. Death presses upon him from numerous quarters; and nothing but the most accumulated vigour of every sense and faculty, exerted with a vigilance that precludes the abstraction of a single thought, or the repose of a moment, can ensure him success in his arduous conflict. It is possible for a patient to reward the mechanical parts of the labour and knowledge of a physician; but no

compensation can ever be an equivalent for such paroxysms of solicitude and mental excitement as have been described, and which occur at all times, and more especially during the prevalence of great and mortal epidemics.

3. From what has been said we may learn that medicine is a more certain and perfect science than is commonly supposed. To judge of its certainty, by the limited nature of its usefulness, is to exclude from our calculations all the circumstances which have been mentioned that militate against successful practice. As well might we deny the fertility of a soil, because the owner of it neglected the proper seasons and ways of cultivating it, as deny the certainty of medicine, because it does not produce salutary effects in spite of the combination of voluntary ignorance, error and vice, against them.

4. In contemplating our present want of success in curing diseases that are not necessarily mortal, let us apply ourselves with fresh ardour to remove the obstacles which are opposed to the perfection of our science. It was often and well said by the late Dr. Jebb, "that no good effort was lost." The seeds of improvement and certainty in medicine, which are now sown, and seem to perish, shall revive at a future day, and appear in a large increase, in the health, and lives of our fellow creatures. Let this reflection console us under the disappointments we meet with, in our attempts to extend the usefulness of our profession. The distance occasioned by time between the different generations of mankind, will

soon be destroyed; and we shall find, with inexpressible comfort, in the final settlement of our account of the good and evil we have done in this life, that our abortive labours of love to our cotemporaries have not been lost, in the total amount of human benevolence.

5. I have said, that the ignorance, folly, and wickedness of man, have hitherto defeated the purposes of the divine benevolence to his creatures. The force of human reason has long been tried without effect, as a remedy for folly and vice. The true character of this operation of the mind has been discovered, in an eminent degree, in the absurd principles and criminal pursuits which have lately actuated the greatest part of mankind. To remove the folly and vice, which obstruct the progress of medical knowledge, and assist in rendering curable diseases mortal, the influence of religion must be added to the operations of reason. I once conversed with an ingenious traveller, in this city, upon the subject of language. He remarked, that it would never be perfect while morals continued in their present imperfect state; for words could never have a just and appropriate meaning, until a sacred regard to truth regulated their application to qualities and actions. This connexion between morals and philology, thus pointed out, is not more intimate and necessary, than the connexion of morals and medicine. I admit in this place of no morality, but that which is derived from religion. It is this divine principle alone, that can subdue all the folly and wickedness

which concur in rendering curable diseases, incurable. Physical and moral evil began together. They have constantly kept pace with each other, and they must decline and cease at the same time. It is the business of reason to remove physical evil; moral evil can only be removed by religion; but to ensure the success of the former, it must be combined with the latter; for reason without religion is like the clay-formed image of our first parent, before his Creator infused into him the breath of life. It is true the dictates of right reason, and religion, are the same; for they both hold out truth and virtue as our supreme good: but they differ in this particular, reason furnishes but feeble and transitory motives to pursue them, while religion, by its powerful and durable impressions upon the will, disposes us to choose them as the only means of regulating our conduct, and ensuring our happiness.

I shall conclude this lecture by remarking, that I have many reasons of a personal nature, for being thankful to God for my preservation from death, during our late mortal epidemic; but none of them operate with more force upon my mind, than the privilege I this day enjoy of again meeting my beloved pupils, in order once more to disseminate, among them, principles in medicine which I believe to be true, and which I know to be useful.

LECTURE IV.

ON THE INFLUENCE OF PHYSICAL CAUSES IN
PROMOTING AN INCREASE OF THE STRENGTH
AND ACTIVITY OF THE INTELLECTUAL FACUL-
TIES OF MAN.

Delivered November 18th, 1799.

GENTLEMEN,

OUR introductory lecture this year shall consist of a few remarks upon the influence of physical causes, in promoting an increase of the strength and activity of the intellectual faculties of man.

This subject is highly interesting to gentlemen of all professions; but it is peculiarly so to physicians, whose studies and duties require the utmost extent and force of all the faculties of the mind.

I include in them, upon the present occasion, the understanding, the memory, and the imagination. The influence of physical causes, upon the moral faculties of the mind, has been considered in another place.

I pass by the knotty question of the specific nature of the mind. It will be sufficient for the purposes of our present inquiry, to believe, that all its operations are the effects of bodily impressions. This belief accords with the old and long received axiom

of the schools—viz. “*Nihil est in intellectu, quod non prius fuit in sensu,*” that is, in other words, the understanding contains no knowledge of any kind, but what was conveyed to it through the avenues of the senses.

In this attempt to show the influence of physical causes, upon the intellectual faculties, I shall confine myself only to those agents which increase the quantity of mind. The causes which lessen it, belong to pathology, and will be enumerated in the second part of the institutes of medicine.

Before I enter upon our subject, I shall remark further, that it is a practical one. Our lecture of course will consist chiefly of facts, which I shall enumerate in an order that will render them intelligible to the youngest student of medicine.

I shall begin by taking notice of the relation of the strength and activity of the intellectual faculties.

1st. To aliment. Abstinence imparts to the memory and understanding, a high degree of vigour. The aid which those two faculties, when thus excited, afford to devotion, has rendered fasting common in most of the religions of the world. Travels and voyages furnish many instances of the wonderful fertility of the mind in persons who are in danger of perishing from famine. Gamesters become acute, by abstaining from food for two days before they sit down to a card table. Such are the beneficial effects of inanition upon the mind, that Carneades, a noted philosopher in Greece, always made it a practice to increase it, by taking a purge of

hellebore, before he disputed with Chrysippus, a distinguished philosopher of the sect of stoics.

Temperance, which consists in eating less than the appetite calls for, has a friendly influence upon the operations of the mind. Sir Isaac Newton lived upon nothing but vegetables, while he was employed in composing his famous treatise upon Optics. Our illustrious countryman, Mr. Edwards, tells us in his diary, that he always studied to most advantage, after a temperate meal. A hundred other instances of a similar nature might be mentioned. Even whole nations bear testimony to the good effects of simple diet upon the intellectual faculties. A broth of a black colour was supposed to have given the Spartans their mental preeminence over all their neighbours; and the barley broth of Scotland, probably contributes no small share to form the reputation which the people of that country have acquired for genius and knowledge, in every part of the world.

However great the benefits and praise of abstinence and temperance may be, I am obliged to add, there are a few instances to be met with, in which a full diet, consisting of gross animal food, has produced great activity of intellect. Dr. Zimmerman informs us that Frederick II. king of Prussia, was a great eater; and many private accounts assure us, that some of the most distinguished literary characters of the present day are devoted to the pleasures of the table. As far as I have been able to learn, most of these acute and ingenious gluttons

are, or have been, subject to great depression of spirits. Large meals become of course necessary to elevate their minds to the ordinary grade at which the faculties act with vigour. The effects of a full diet upon most persons is the reverse of what has been mentioned. It generally weakens the intellectual faculties, and instances are not wanting, of its having produced a total extinction of them in the most deplorable fatuity.

2d. The use of certain drinks is connected with vigour and celerity in the operations of the mind. The intellects of Demosthenes in ancient, and of Dr. Haller in modern, times, were kept in a state of regular excitement, by their drinking nothing but water. Wine, when taken in moderation, produces wit and humour in company. It multiplies images in the imagination of the poet, and sometimes creates new combinations of ideas in the understanding of the philosopher. Ardent spirits have sometimes had the same effects. Coffee and tea excite the understanding in the most agreeable manner. The former was the mental stimulus of Voltaire. The latter was used so constantly for the same purpose by the celebrated Dr. Johnson, that the water in his teakettle, it is said, was seldom cold. Happily for the interests of science and literature, those two pleasant infusions have become the cordials of studious men in many parts of the world, and thereby rescued them from the baneful effects of intoxicating liquors.

3d. Opium exerts a friendly and agreeable influence upon the intellects. The late Mr. John

Hunter never rose to deliver a lecture, without previously exciting his faculties by means of a dose of laudanum. Dr. Johnson, an ingenious physician, who visited our city in 1794, informed me, that during a residence of fourteen years in India, he had learned to drink, as a common beverage, an emulsion made of poppies, which he found to have a powerful effect in invigorating the faculties of his mind.

4th. Tobacco acts upon the understanding by its stimulus predominating over all other impressions, which, by distracting sensations, prevent the accumulation of that degree of excitement in the brain, that is favourable to a vigorous and connected train of thought. The well known Hobbes always sat in his study enveloped in the smoke of ten or twelve pipes of tobacco. An eminent dissenting clergyman in England composed a system of divinity, with streams of saliva impregnated with tobacco issuing from his mouth; and Frederick II. king of Prussia, resorted to a profuse use of snuff, to elevate his mind above the pressure of the difficulties and dangers of his last seven years' war.

Where the use of this weed in any way has been habitual, we sometimes see the want of it followed by great languor in the intellectual faculties. This languor has been seen to yield, in an instant, to a pinch of snuff, or a segar. Let us not suppose, from these facts, that tobacco has a necessary and original influence in producing force or connexion in the operations of the mind. It acts in this way only

upon persons who are accustomed to it. Thus, garlic imparts health to some people; but it is only to those who have been in the habit of living upon that loathsome vegetable. In persons who are unaccustomed to it, it excites sickness at stomach, and many other distressing commotions in the body.

5th. Different positions of the body, and different exercises, have a sensible influence upon the intellectual faculties. Descartes composed his works in bed. Mr. Brindley found a recumbent posture most favourable to the exertions of his genius, and hence we are told, he sometimes lay in bed for three days, when he was obliged to plan a new and difficult piece of machinery. Rousseau tells us, in his Confessions, that most of his original thoughts were suggested to him in bed. I have known many other instances, in which this posture of the body has proved favourable to the production of new, and the revival of old, ideas. It is much assisted by the silence and darkness of night, and by the empty state of the stomach in the morning.

In some persons the intellects are excited by a *standing* position. Col. Charles Townsend, (so much admired in the British House of Commons, about thirty years ago) was eloquent only when he stood upon his feet; and so sensible was he of it, that he would often rise from his seat at a convivial table, in order to give more force and charms to his conversation. The late Judge Wilson, whose abilities and knowledge will never be forgotten by the friends of the revolution and government of the United

States, has assured me, that his ideas always flowed most easily when he was upon his feet. This was so much the case, that I have repeatedly observed him, when closely pushed in an argument, or deeply engaged in conversation, to rise from his chair in company, and occupy a fixed position in a corner of a room. The late Sir Joshua Reynolds always painted in a standing posture. I need hardly add, that his pencil has given celebrity to the country in which he lived. WALKING assists the operations of the intellectual faculties in an eminent degree. A sect of philosophers, who were remarkable for studying and teaching, while they were employed in this exercise, obtained from thence the name of Peripatetics. Rousseau derived many of his new ideas, he tells us, from walking amidst rocks and mountains. RIDING, whether on horseback, or a carriage, favours thought, and hence the practice of some travellers to carry commonplace books with them, to record their original thoughts the moment they occur, lest, in their number and variety, they should be lost before they reach the end of their excursions. Many of the elegant ideas of Mr. Pope, we are told, were excited in his brain by riding a trotting horse. The late Mr. Edwards found this mode of exercise to pour such a stream of new ideas into his mind, that, in visiting his parishioners, he often retired from the road into the woods, and dismounted his horse, in order that he might, without interruption, empty the overflowings of his genius into his pocket memorandum book.

6th. Loose dresses contribute to the easy and vigorous exercise of the faculties of the mind. This remark is so obvious, and so generally known, that we find studious men are always painted in gowns, when they are seated in their libraries. Sometimes an open collar, and loose shoes and stockings, form a part of their picture. It is from the habits of mental ease and vigour which this careless form of dress creates, that learned men have often become contemptible for their slovenly appearance, when they mix with the world.

7th. Weakness, disease, and pain, have, in many instances, given a preternatural excitement to the human intellects. Cicero, Erasmus, Pascal, and Boilieu, were all known, to their contemporaries, as much by the feebleness of their constitutions, as by the strength of their minds. The great mental vigour, which has been observed in persons who are humpbacked, of which the celebrated Roman orator Galba, and Mr. Pope, furnished memorable instances, is probably occasioned by the bodily weakness that is connected with deformity. But the effects of disease, whether occasional or chronic, in evolving mind, are still more remarkable. How often do we hear our patients discover, upon a sick or death bed, marks of reflection, and even eloquence, to which they were strangers when they were in health! It has been remarked, that abortive and sickly children make sensible men and women.*

* The first Lord Littleton, and the late Mrs. Elizabeth Ferguson of Pennsylvania, were both seven months' children.

Disease, in these cases, acts in various ways. It imposes a restraint upon their appetites, it confines them to the company of their parents, and of persons who are capable of improving them, and it certainly keeps up an action in the brain, in common with other parts of the body, which tends to impart vigour to the intellectual faculties.

But further. There are several well attested instances upon record, of persons speaking long forgotten languages in the delirium of a fever; and one, related by Dr. Frank, of a man, who spoke a language, in a diseased state of his brain, which he had never learned. If this be true, he must have heard the words of it, without understanding their meaning; for it is impossible to conceive of the knowledge of even a single sound existing in the mind, unless it had been previously conveyed there through the medium of the ears.

In support of the influence of diseases in exciting the faculties of the mind, let us attend to the phenomena of diseases, which are produced by a morbid state of the brain. The intellects act here without order, but they act with uncommon celerity and force. Of this, every man must be convinced, who has paid the least attention to those operations

The writings of the former will always remain as evidences of a great and vigorous understanding. The latter, for more than forty years, was admired by both sexes for her uncommon talents. What Dr. Johnson says of Mr. Burke, may be said of her, with a small addition. "Her conversation," and letters, "were a stream of mind."

in his own mind. The business of a day is often transacted in a dream, in the course of a single minute; and the perception of supposed impressions on the imagination, are far more vivid than in the waking state. Even madness discovers the connexion between morbid excitement in the body, and an increase of vigour and activity in certain intellectual operations. Who has not heard preternatural and brilliant effusions of eloquence and wit in the cell of an hospital? The disease, in this instance, resembles an earthquake, which, in rending the ground, now and then throws upon its surface, with many offensive matters, certain precious fossils, which surprise and delight us by their novelty or splendour.

The effects of pain, in generating new ideas, or exciting old ones in a rapid succession, have been taken notice of in my account of the influence of physical causes upon the moral faculty. To the facts I have there mentioned, I shall add two more. The famous pedestrian traveller, Mr. Stewart, informed me, that he had seen torture produce short intervals of reason in some idiots in Italy. I have known the pain of a large abscess upon the back, produce the same effect upon a man, who had been confined for madness, which ended in fatuity, above twenty years in the Pennsylvania Hospital.

8th. Moderate sleep preserves and increases the energy of the mind. It is always in excess, when it exceeds the third part of an astronomical day. Much less has been found sufficient for health and comfort,

in the most distinguished persons who have lived in the republic of science and letters. Mr. John Wesley, who died in the eighty-sixth year of his age, with all his faculties in their full vigour, seldom slept more than four hours in the four and twenty. The morning is more favourable to the rapid and easy exercises of the mind, than any other part of the day. The results of midnight studies are said "to smell of the lamp," because they generally discover marks of drowsiness or labour.

9th. Certain sounds have the power of exciting the faculties of the mind into preternatural action. The effects of music upon them is well known. Poets and mathematicians have, in many instances, found their talents for invention assisted by a tune upon a violin or a German flute.

10th. A certain temperature of the air, is favourable to the vigorous operation of the faculties of the mind. This temperature is different in different people. It has generally that degree of heat in it, which is not accompanied with any sensation. Cold or heat, when perceptible, distract the excitement of the brain, and thereby interrupt thought. It is only when the exercises of the mind are conducted with uncommon vigour, that we lose our perceptions of the impressions of heat and cold. The suspension of those exercises, and even the least relaxation of them, is immediately followed by a sense of profuse and distressing sweats in summer, or of a painful coldness in the hands and feet in winter. The genius of Milton poured forth its sublime and harmo-

nious ideas only in the spring and autumn. I have never heard of but one person, whose mental faculties were improved by cold. It was a student of mathematics, who used to remove the embarrassment produced by a difficult problem, by taking off his wig, and exposing his bare head to the north-west wind, in the middle of winter.

11th. Rural and mountainous situations have an influence in exciting the intellects into vigorous action. The poets of every age and country have uniformly derived the principal stimulus to their minds from country scenes. The Eclogues of Virgil, the Windsor Forest of Pope, the Seasons of Thomson, and the Poems of Ossian, all bear witness to the truth of this remark. The effects of these rural scenes are much increased by their novelty. It is from the variety and constant succession of *new* objects, both natural and artificial, acting upon the mind, that young men sometimes acquire, not only knowledge, but intellect, by visiting foreign countries. It is from the same cause, probably, that boys who appear to be deficient in capacity, learn well when sent from home to a city or country school.

12th. Great height has produced, in several instances, uncommon activity in the intellectual faculties. An ingenious foreigner lately informed me, that he had once conversed with a man who had spent several hours upon the summit of the steeple at Strasburg, who told him, that his mind, while there, was overwhelmed by the variety and originality of his thoughts. We have heard much of the pleasure

which many persons have felt in traversing the upper regions of the air in a balloon. It is to be lamented that they have neglected to record, at the same time, the influence of that new situation upon the operations of their minds*.

* The Abbe Spallanzani describes the state of his mind, upon the summit of Mount *Ætna*, in the following words: ' Seated in the midst of this theatre of the wonders of nature, I felt an indescribable pleasure from the multiplicity and beauty of the objects I surveyed, and a kind of internal satisfaction and exultation of heart. The sun was advancing to the meridian unobscured by the smallest cloud; and Reaumur's thermometer stood at the tenth degree above the freezing point. I was therefore in that temperature which is most friendly to man; and the refined air I breathed, (as if it had been entirely vital) communicated a vigour and agility to my limbs, and a *life* and *activity* to my ideas, which appeared to be of a celestial nature." *Travels into the Two Sicilies*, vol. i. p. 285.

In his account of the islands of Felicuda and Alicuda, he adds further: "As to the content and tranquillity of these islanders, and the affection they bear their native country, I do not think I should greatly err, were I to ascribe it to the happy temperature of the climate, and the quality of the air, which, when pure, so much contributes to maintain in us the proper harmony between the solids and fluids, or the state of perfect health. A proof of this, I experienced in myself. Notwithstanding the continual and great fatigues I underwent in my excursions among those rocks, and notwithstanding my advanced age, I felt in myself an energy of body, an *agility* and *liveliness* of mind, and an animation of my whole frame, which I had experienced no where else, except on the summit of mount *Ætna*. In countries infested with impure air, and thick vapours, I have never been able to apply myself to my favourite studies immediately after dinner, but under this sky, which is so rarely overclouded with vapours, I could write on the

13th. The great variety and constant succession of new impressions, which occur in large cities, from business, news, company, theatres, shows, controversies and casualties, have a powerful effect in increasing the strength and activity of the intellects. London and Paris have been, for many centuries, the hotbeds of men who have adorned and enlightened the British and French nations. Such is the combined force of mental impressions in those great capitals, that they impart rapidity to the movements of the body, and particularly to the organs of speech. This is so much the case, that the citizens of London and Paris are often known by their walking and speaking quicker than the inhabitants of villages and country places.

14th. Silence and solitude have always been considered as favourable to intellectual attainments. It was to avoid noise, that the philosophers of Greece retired to groves, and sequestered places, impenetrable to distracting sounds of all kinds. The influence of solitude upon the understanding has been ably pointed out by Dr. Zimmerman. To be useful, silence and solitude should be temporary, and always alternated with company.

15th. I hinted formerly at the beneficial effects of darkness upon the mind. Corneille shut his windows, and created an artificial darkness, when he composed his plays. Mr. Woodfall always sat with

spot, at any time, a part of those observations I am now about to present to the public. Vol. iv. p. 149, 150.

his eyes closed, when he filled his memory with the speeches of the celebrated speakers in the British House of Commons, in order that he might copy, and print them afterwards in his newspaper. It was to obtain the utmost advantages from the absence of all the distracting objects which are obtruded by the light of the sun, that the famous council of Areopagus, in Athens, held all their sessions at night, and in the open air. The effects of perpetual darkness upon the mind, in blind people, are well known. Homer and Milton probably owed much of the vigour and extent of all their intellectual faculties, to the loss of their sight.

From a review of all the facts that have been mentioned, it is obvious, there is the same variety in the texture of the minds, that there is in the bodies of men. It would seem, likewise, as if there was a certain point at which impressions produced the greatest vigour and celerity in the operations of the intellectual faculties. This point is influenced by the previous state of the brain, with respect to elevation and depression. The impressions might have been divided into stimulating and sedative, were it not for the variety we observe in their effects, according to the different state of the brain in different people, and in the same people, at different times.

The senses are the avenues of all our knowledge. The loss of one of them is generally made up by the increased acuteness of others. May not the same increase of sensation be imparted to all the senses by certain artificial means? We see it induced in

the eye, in the sea captain; in the ear, in the hunter; and in the fingers, in the clothier; by their respective occupations. The effects of extending the limits of sensation, which I believe to be practicable, could not fail of enlarging and strengthening the mind.

Having enumerated briefly all the physical causes which act obviously upon the mind in enlarging its faculties, I shall proceed next to mention a few more, which, though not admitted to be physical, act in the same way, by exciting, multiplying, and modifying motions in the brain, and thereby producing more vigorous emissions of thought.

1. There are certain studies which are calculated to increase the strength of the intellectual faculties in early life. They are, first, *natural history*. This science is strongly recommended to our notice and attention, by its having been the first study of the father of mankind, in the garden of Eden. It furnishes the raw materials of knowledge upon all subjects. By the fermentation they excite in the mind, they prepare it for embracing with facility the principles of general science.

2d. The amusements of *Checkers*, *Chess*, and *Riddles*, are calculated to impart strength to the minds of children, after they pass the seventh or eighth year of their lives.

3d. The study of *arithmetic and the mathematics*, have long been celebrated for their efficacy in awakening, strengthening, and arranging the thinking faculties. Where there is an inaptitude to them, they have sometimes been known to have a contrary

effect. In no instance should they be obtruded upon young people, where they discover an inability to acquire them with facility or pleasure.

We sometimes meet with children who astonish us with the rapidity of their attainments in every kind of knowledge. These children are generally destined by superstitious people, not to "scratch a gray head." Many of them die prematurely, from the disproportion between the exercises of their minds, and the strength of their bodies; while those who survive these early achievements of genius, become sickly, or weaken their intellects before they attain to maturity. To prevent these consequences of premature vigour in their faculties, they should be seduced from study, by teaching them useful or ornamental *bodily* exercises. Rousseau, though often erroneous and paradoxical in his system of education, is just in saying, the exercises of the body should always precede those of the mind. I never can forget the pleasure with which I saw, for the first time, this excellent remark exemplified at the house of a gentleman in the neighbourhood of Edinburgh; who introduced one of his daughters, then about five years old, with a little spinning-wheel, at which she worked with great dexterity, singing at the same time a well known song, suited to her employment, to the great delight of a large and respectable company. The celebrated David Hume, Dr. Blacklock, and James Boswell, composed a part of the guests at this agreeable entertainment.

2. Changing the objects of study, has a considerable influence in begetting strength and activity in the intellectual faculties. The new objects of study, act according to their nature, either as a fresh stimulus to the brain, or by producing a moderate relaxation in such parts of it as have been unduly exercised. The late lord Chatham made it a practice to excite his genius by reading a few pages of Dr. Barrow's theological works, before he took a part in the debates of the British House of Commons. The late Dr. Finley, frequently read a portion of Mr. Howe's meditations for the same purpose, when he preached without notes. Rousseau reduced the extravagant tone of his mind, by descending to light studies. Mr. M'Laurin relieved himself from the fatigue induced by his mathematical researches, by reading novels. Writing a letter, or reading a newspaper, has in some instances enabled persons to solve problems, which before eluded the utmost exertions of their powers.

3. The exercises of the faculties in *composing*, whether in prose or poetry, has a wonderful effect in strengthening and facilitating their operations. It is for this reason, that the composition of letters, declamations, disputes, and orations form an essential part of education, in all well-conducted seminaries of learning. In attending public instruction, young men are *taught* by their masters, but in committing their thoughts to paper, they *teach* themselves. "The man," says Dr. Clark, "who wishes "to become eminent in any profession, must read

“much, *think* much, and *write* much.” The last of these exercises of the mind is indispensably necessary to give the highest vigour to a mind of which it is capable. Dr. Priestley has made it a constant practice to write upon every subject which he wished to understand perfectly, and to this thirst for extensive and accurate knowledge, may be ascribed, in part, his numerous publications. Even wit is evolved by means of the inkstand. Dr. Arbuthnot, the friend of Swift, never said a witty thing in company, but his miscellaneous writings show, that he possessed that talent in an eminent degree. The wit and satire of Peter Pindar flow likewise only upon paper. In conversation, it is said, he is not distinguished by them, from other men.

It has been remarked, that our dreams are most connected, when we imagine ourselves to be engaged in conversation. Speaking arrests the velocity of our thoughts, and gives them some degree of order. Composing acts in like manner, but with a greater effect in retarding the rapid succession and flight of our ideas. It is for this reason, that we often observe great and original thoughts evolved in a letter, by men, who are dull in conversation, and devoid of genius in the common business of their lives. Dr. Franklin was so sensible of the strength and correctness the mind derived from a slower current of ideas in writing, than in barely thinking, that he never undertook any important enterprise, without first committing to paper all the arguments for and

against it, and afterwards placing them before his eyes, while he deliberated and decided upon it.

As the faculties have a reciprocal action upon each other, they should be all exercised together, or in a close succession. The memory should constantly be employed in administering materials for the understanding to act upon, and the imagination should occasionally be stimulated to furnish its images to both, by a recurrence to the poets. A page of Milton, or Young, or a line in Shakspeare, is to a mind rendered languid by intellectual pursuits, like wine to the body, when debilitated by exercise or labour.

4. The passions, when excited, have a considerable influence upon the intellectual faculties. Lord Kaimes says, "he has seldom known a man of great genius, who was not more or less under the domination of some strong passion." Alexander and Cæsar owed much of the force of their military talents to their ambition. Pride gave to the soul of Cato all its elevation, and vanity acted powerfully in producing the eloquence of Cicero. Avarice, when inflamed by habits of gaming, also love, anger, and all the other passions of less force, stimulate the intellects, and thereby dispose them to evolve a greater quantity of thought. Even grief, after its first paroxysm subsides, has the same effect. The poems of Ovid and Dante, written during their banishment; the Night Thoughts of Young, and the monodies of Lyttelton and Shaw, are inimitable proofs of the truth of this assertion. "Vexation," says Van Helmont, "brings

forth understanding."* "This is strictly true. Hence we seldom see young men, who begin the world without patronage or friends, rise to eminence and fame, who have not been exposed to frequent causes of irritation, from envy and malice, in early life. It would seem from this fact, that action and reaction are equal, in the strife between opposition and talents. While the former creates talents, the latter are created by opposition.

In the confessions of Rousseau there is a seeming exception to the influence of the passions in giving energy to the understanding. He says, when he was much agitated, he lost, for a while, the command of his intellectual faculties. In this case, they were stimulated beyond their power of action, by the extravagant force of his passions. The same thing happens from a great excess of stimulus upon all the moving fibres of the body.

5. The *will* should never be idle in those persons, who wish to possess great vigour and activity of mind. Slaves are stupid, because they have no wills of their own. Business, which gives the will constant employment, should always be blended with study. It is because the pursuits of business act so powerfully in invigorating the understanding, that professional men are generally preferred for great civil appointments, to men who pass their lives among books, in a state, in which the active powers of the mind have no objects to stimulate them. It is remark-

* Vol. i. p. 470. On the power of Medicine.

able, the faculties, after having been engaged in busy scenes, languish in retirement, and that men, who follow business of some kind, whether public or private, seldom outlive, in extreme old age, the vigour of their minds.

6. *Conversation* strengthens the intellectual faculties. Dr. Franklin acknowledged, that some of his most original ideas were suggested to him by conversing with persons, who were ignorant of the subjects upon which they instructed him. I once knew a gentleman, who wrote occasionally for the press, who made it a practice to draw his friends into a conversation with him upon the subjects on which he had been writing, before he committed his essays to the public eye; by which means he corrected mistakes, and often added to the merit of his publications.

7. The exercise of the intellectual faculties upon *certain* specific subjects, imparts strength and activity to them. These subjects are *Politics* and *Religion*. I have elsewhere taken notice of the effects of liberty in producing the greatest quantity of animal life. It promotes the same increase of the quantity of mind. The preeminence of the Greeks and Romans in intellect, over all the ancient nations in the world, was derived chiefly from the popular form of their governments. In monarchies, the birth or death of a prince, the sickness of a king, and the events of a war, are the principal objects, that, by awakening the attention of a whole nation, infuse vigour into the public mind. But in republics, the same vigour

is produced every two or three years by general elections. These important seasons, in which heaven renews one of the dividing lines between man, and the brute creation, interests every feeling of the heart. They stimulate the passions, which afterwards act upon the understanding, and impart to it a force, which prevents its relapsing into the repose of public apathy, during the intervals of a general suffrage. From a strict attention to the state of mind in this country, before the year 1774, and at the present time, I am satisfied, the ratio of intellect is as twenty are to one, and of knowledge, as an hundred are to one, in these states, compared with what they were before the American revolution.

The sublime and various objects of religion are calculated to expand the human intellects to their utmost limits, and to impart to them a facility of action. We read, that the face of Moses shone, when he descended from conversing with his Maker upon mount Sinai. The contemplation of the divine character and perfections never fails to produce a similar splendour in the human mind.

But further: It is a fact worthy of notice, that the most enlightened parts of the world, in general and useful science, are those in which the doctrines of the Christian religion are taught and believed. Its effect, in preparing the mind for the attainment of human knowledge is happily described by Mosheim, in his Ecclesiastical History, in the following words. "The reception of Christianity," says our author, "polished and civilized in an extraordinary manner,

the rugged minds of the valiant Normans; for those fierce warriors, who, under the darkness of paganism, had manifested the utmost aversion to all branches of knowledge, and every kind of instruction, distinguished themselves *after* their conversion, by their ardent application to religion and the pursuit of learning.”*

8. ASSOCIATION acts powerfully upon the intellects through the medium of the memory; hence we find professional men often contract a predilection to particular situations, and objects in the prosecution of their studies. These situations from being at first imposed by accident or necessity, are sometimes in the neighbourhood of a noisy street, or in the corner of a fireplace, surrounded by a family of talking or playful children, but they are more frequently in sequestered places, remote from noise. It is from the influence of association upon the activity of the mind, that brilliant men sometimes become dull from accidentally losing their customary chair at a club. It is from the same principle, that a boy can say his lesson best out of his own book. Even the dirt, and dogs' ears (as they are called) with which it is defaced, serve to awaken the recollection of words or ideas which have been associated with them in his mind.

It might add to our knowledge of the subject before us, to mention the circumstances which diminish the force and activity of the human intellects.

* Vol. ii. American edition, p. 448.

But these will be taken notice of when we come to treat of the remote causes of the diseases of the mind. I shall only deliver a few remarks in this place, which appear to be intimately connected with our present subject.

1st. The first is taken from Dr. Hartley. It is, that wit of all kinds, and more especially that species of it which is called punning, has a tendency to weaken the understanding by unduly exercising the imagination. Whether it was upon this account, or because persons who possessed this talent, seldom displayed it without giving offence, I know not, but I well recollect the late Dr. Witherspoon used often to say, "that he would correct a child almost as soon for being witty, as for telling a lie." An opinion equally degrading of this talent was held by the Areopagus of Athens; and hence we read of a member of that council who resented, in an open court, a detail of his public conduct in which he was said to have played upon a word.

2d. As a means of retaining the strength and activity of the intellectual faculties, no portion of them should be wasted upon unprofitable studies. We hear much of economy in the expenditure of money and time, but few people think of the precious nature of this excellent virtue as applied to the expenditure of intellect. The attention which is employed in reading novels, plays, and in idle conversation, carries away with it a portion of the excitability of the intellectual faculties, which can never be recovered; and thus deducts from that vigour

which might have been profitably employed upon useful subjects.

3d. Several of the sources of physical influence which have been mentioned, show us the impropriety of immuring ourselves in a cell in order to acquire knowledge. It is by the exercise of the body, and the collision of our intellects, by means of business, and conversation, that we impart to them, agreeable and durable vigour. Men may learn to *speculate* in a closet, but they will learn to *reason*, only by pursuing some active employment. There is the same difference between the knowledge acquired in the former, and latter way, that there is between the imaginary wealth acquired by speculation, and the solid property which is acquired by regular and honourable commerce.

4th. As the products of wealth by trade are always in proportion to the capital which is employed for that purpose, so the acquisition of knowledge is always in a ratio to the quantity of it which is already possessed. A few ideas upon three or four subjects impart vigour and activity only to a portion of the mind, while a large mass of ideas diffuses vigour and celerity of motion to every part of it, and thereby enables it to acquire knowledge with more facility and expedition. The degrees of vigour, and the number and exility of motions which the mind is capable of receiving by all the causes that have been enumerated, elude our present powers of calculation. Our inability to measure its attainments, will be felt more sensibly, when we reflect, that know-

ledge, and the intellectual faculties, will mutually increase each other, to the latest period of our lives. The effects of this action and reaction, in making additions to the intellects and knowledge, lead us to admit the assertion of Condorcet, that the time will come, when all the knowledge we now possess, will appear to the generations that are to succeed us, as the knowledge now possessed by children, appears to us. It has been said, "learned men know what is *past*, weak men what *is*, but wise men only know what is to *come*." It is possible the knowledge of what is past and present, may be so accumulated and combined, as to render prescience, as far as is connected with our interest and happiness in this world, one of the attributes of the human mind. Perhaps this may be a part of the means that shall be made use of by Divine Providence, to produce the general diminution of evil, in our world, which is foretold in the prophetic writings of the old testament. This conjecture derives some strength from our possessing already the embryos of this kind of knowledge, in the certainty of the predictions of changes in the weather, and of the appearance, and issue of many diseases. But we must not drop this subject here. If such will be the attainments in knowledge, from the above causes, in this life, what incalculable additions to it, may we not expect, from the evolution of the same faculties, acted upon by many new impressions, in a future state of existence? Let us carry our imaginations forward, and take a view of the mind after it has continued

in its renovated state ten thousand years. The difference at that period, from its most enlarged attainments in this world, will probably be much greater, than its present difference in knowledge and intellect is, from those of the meanest insect. But let us protract the period of its existence to a million of years. Here we behold a disproportion between its terrestrial and celestial states of knowledge and intellect probably equal to that which now exists between the dimensions of a grain of sand, and our globe. It would be criminal not to carry our thoughts one step further. How infinitely great must that BEING be, whose works, and attributes shall constantly furnish new objects for these constant, and growing exercises of the mind. For ever receding from them, in proportion as they are expanded, after millions of ages have revolved, the great FATHER of the universe will be more and more incomprehensible, and thereby—But I forbear. The mind sinks beneath the weight of the infinite object of its future contemplations, and of its own sublime and happy destiny.

5th. From what has been delivered, gentlemen, it appears, that the enlargement and activity of our intellects, are as much within our power, as the health and movements of our bodies. This lesson has often been obtruded upon us by the entertaining spectacles of learned pigs, dogs, and several other animals. If this remark were not a just one, dulness and ignorance would not, by an innate law of our natures, be the objects of universal contempt. The awkward

ness or affectation of the body, which are the effects of wilful negligence or art, are, by a similar law of our natures, treated in the same manner. Fatuity and bodily defects, which are derived from birth, or afterwards induced by disease, meet with a very different treatment from the world. They are, at first sight, the objects of universal sympathy.

6th. Many of the facts, which have been mentioned, teach us, in a forcible manner, duly to appreciate the blessings of civilization, science and religion. The innumerable stimuli, with which they abound, not only *create* mind, but from the variety and difference of force, in which they operate, they produce that variety in its forms, which renders the study and knowledge of it so agreeable and useful. A dull and disgusting sameness of mind characterizes all savage nations. Mr. Stewart, the pedestrian traveller, took some pains to establish the truth of this assertion. While in Canada, he was introduced by colonel Brandt to a number of Indian men. He asked each of them separately, why he painted himself? he said, "to look terrible in war." He then asked him, why his nation did not cultivate the arts of peace, which he described in as captivating a manner as he was capable. They appeared stupified with the novelty of the ideas he suggested, and each man answered, as if by previous concert, "that a warrior was a great man."

7th. The facts which have been mentioned, serve further to refute the objection which has been urged against the Mosaic account of the whole human race

being descended from a single pair, from the weakness of the intellects in certain savage and barbarous nations. This weakness is as much the effect of the want of physical influence upon their minds, as a disagreeable colour and figure are of its action upon their bodies.

I shall conclude our lecture by remarking, that much remains yet to be known upon this subject. It is possible, the strength of the intellects may be improved in their original conformation, as much as the strength of the body, by certain mixtures of persons of different nations, habits, and constitutions, in marriage. The mulatto has been remarked, in all countries, to exceed, in sagacity, his white and black parent. The same remark has been made of the offspring of the European, and North American Indian. The physician, whose name, and long residence in the East Indies, were mentioned in another place, informed me, that the marriages of Danish men, with the East India women, produced children, that had the countenances and vigorous minds of Europeans, but that no such results appeared in the children of marriages of East India women with the males of any other European nation. Similar facts may be very common, but not observed. It is probable, the qualities of body and mind in parents, which produce genius in children, may be fixed and regular, and it is possible, the time may come, when we shall be able to predict, with certainty, the intellectual character of children, by knowing the specific nature of the different intellectual faculties of their parents. As conjugal happiness, in its positive degree, is often the

result of dissimilar tempers, so, strong intellects in children, may be the product of a difference in the mental faculties of the two sexes. There is one fact, which favours this opinion. A late French writer has remarked, that judgment in one parent, and a predominance of imagination in the other, produce, in their offspring, the most perfect and well balanced minds.

8th. In the former part of this lecture, I took notice of the effects of certain liquors in invigorating the mind. May there not be some production of nature or art, yet undiscovered, that shall act in such a manner upon the brain, as to enlarge and strengthen the intellectual faculties, so as to enable them to accommodate to difficulties and emergencies, in the contemplative and active pursuits of life? Kempfer tells us, that he was treated with a liquor, in Persia, called Peganum, which produced suddenly, the most extravagant sensations of joy. They continued, he says, for three days, and then left him, with an oblivion of all he had said and done, during his paroxysm of mental delight. Perhaps there exists upon our globe, a substance, which shall produce similar transports in the excitement and exercises of the intellectual faculties. This conjecture is rendered probable, by a fact, related by Ettmuller. He tells us, that he had known three cubebs taken every day, to have a wonderful effect in invigorating the memory. Should this boon be reserved for the human race, it will be humane and pious to wish, that it may not be found out, until men shall cease to concentrate

the utmost force of their faculties, in discovering new modes of private and public oppression, and new instruments for inflicting pain and death upon each other.

LECTURE V.

ON THE VICES AND VIRTUES OF PHYSICIANS.

Delivered November 2d, 1801.

GENTLEMEN,

MAN is a compound of good and evil. These dispositions appear in different proportions, according to the circumstances in which he is placed. They are much influenced by different states of society, and by different pursuits and occupations in life. Every profession has its peculiar vices and virtues. The business of our present lecture shall be to point out such of them as are attached to the profession of medicine. This investigation I hope will be useful, by teaching you in your outset in life, to avoid the former, and to cherish the latter. By these means, you will at once render the practice of physic, and your own characters, more respectable. You will likewise be enabled thereby, to bear with more composure and fortitude the vexations and distresses which are connected with a medical life.

The vices of physicians may be divided into three heads.

- I. As they relate to the Supreme Being.
- II. To their patients, and
- III. To their professional brethren.

1st. Under the first head I shall begin by lamenting, that men whose educations necessarily open to them the wisdom and goodness of the Creator, and whose duties lead them constantly to behold his power over human life, and all its comforts, should be so very prone to forget him. This they evidence by their neglect of that worship, which is paid to him in different forms, under true, or false names, in every country. If it be a fact, that physicians are more inclined to infidelity, than any other body of men, it must be ascribed chiefly to this cause. To correct this disposition, it is necessary we should be frequently reminded of the arguments on which Christianity is founded, and of the numerous and powerful motives which enforce a belief of it. It is in places of public worship that these arguments and motives are delivered to the most advantage, and it is by neglecting to hear them, that the natural propensity of the human heart to infidelity, is cherished and promoted. This vice of the understanding has no natural alliance with the practice of physic, for to no secular profession does the Christian religion afford more aid, than to medicine. Our business leads us daily into the abodes of pain and misery. It obliges us likewise, frequently to witness the fears with which our friends leave the world, and the anguish which follows in their surviving relatives. Here the common resources of our art fail us, but the comfortable views of the divine government, and of a future state, which are laid open by Christianity, more than supply their place. A

pious word, dropped from the lips of a physician in such circumstances of his patients, often does more good than a long, and perhaps an ingenious discourse from another person, inasmuch as it falls upon the heart, in the moment of its deepest depression from grief. There is no substitute for this cordial in the *materia medica*.

2d. An undue confidence in medicine, to the exclusion of a Divine and Superintending Power over the health and lives of men, is another vice among physicians. A Dr. ———, in New York prescribed on an evening, for a sick man. The next day he called and asked him how he was: "Much better (said he), thank God." "Thank God! (said the doctor) thank me, it was I who cured you."

3d. Drunkenness is a medical vice, which offends not only God, but man. It is generally induced by fatigue, and exposure to great heat and cold. But a habit of drinking intemperately is often incurred by a social spirit, leading physicians to accept of offers of wine, or spirits and water, in every house they enter, in the former part of the day. Good men have often been seduced and ruined by this complaisant practice. I shall hereafter mention to you the safety, and advantages of eating a little fruit, or portable aliment, in preference to drinks of any kind before dinner, or when the body is in a languid state from fatigue. Drunkenness is a hideous vice in any person, but peculiarly so in a physician. If it rendered him offensive to his patients only by the smell it imparted to his breath, it should be a

sufficient motive to deter him from it, but its evils are much more serious and extensive. It corrupts his manners, impairs his judgment, and renders him unfit to prescribe for the sick. Two instances of death have occurred, within my knowledge, from patients taking excessive doses of liquid laudanum, from the hands of a drunken physician.

4th. The members of our profession have sometimes been charged with an irreverent, and profane use of the name of the Supreme Being, but from the general disrepute in which that vice is now held in genteel life, I am happy in adding that it is less common among physicians, than it was forty years ago.

II. In speaking of the vices of physicians as far as they relate to their patients, I pass over numerous acts of imposture. They are all more or less contrary to good morals. I shall at present only mention the more obvious and positive vices which belong to this head. They are,

1st. Falsehood. This vice discovers itself chiefly in the deceptions which are practised by physicians with respect to the cause, nature, and probable issue of diseases. What oceans of falsehoods have issued from the members of our profession, upon the cause of pestilential epidemics, in all ages and countries! How many false names have been given to them to conceal their existence! In England the plague of 1664, was called, for several months, by the less alarming name of a spotted fever. In the United States of America, the yellow fever, is deprived for

a while of the terror it ought to produce in order to its being avoided, or cured, by receiving the name of a common remittent, or by being ascribed to intemperance, or to some cause which only excited it into action. Equally criminal is the practice among some physicians of encouraging patients to expect a recovery, in diseases which have arrived at their incurable stage. The mischief done by falsehood in this case, is the more to be deplored, as it often prevents the dying from settling their worldly affairs, and employing their last hours in preparing for their future state.

This vice in physicians sometimes appears in histories of cases that never existed, and of cures that were never performed. When it assumes this hateful form, its evil consequences become extensive and durable, from the difficulty with which it is detected and exposed.

2d. Inhumanity is a vice which sometimes appears in the conduct of physicians to their patients. It discovers itself in the want of prompt and punctual attendance upon the sick, and in a careless or unfeeling manner in sick rooms. This insensibility to human suffering is very happily exposed in the *New Bath Guide*; I should have supposed it too highly coloured, had I not heard of similar instances of inhumanity in several members of our profession. A lord of session, once fell from his seat in the cowrt of Edinburgh in an apoplexy. A physician was called in haste to see him. He applied his fingers to his pulse. His brother judges, and a crowd of spectators waited with solicitude to know whether

he still retained any sign of life. "He is dead," said the physician, and in the same breath, said to a person who stood next to him, "Pray sir, shall we have a Spanish war?" But more shocking to humanity, was the answer given by a physician in this country, to a person who called upon him to see his father, and in order to quicken his steps, told him his father was dying. "Then (said he) I can do him no service. Let him die, and be d——d." It is some consolation to the lovers of the healing art to recollect that such instances of a want of sympathy and decency in physicians are very rare, and that examples of a contrary disposition, as I hope to prove hereafter, are more common amongst them.

3d. Avarice, in all its forms of meanness, oppression, and cruelty, is a frequent vice among physicians. It discovers itself,

1st. In a denial of services to the poor. I once heard a physician's eminence estimated by the fewness of his bad debts, and by his doing no business, for which he was not paid. We had a trader in medicine of this kind in Philadelphia, many years ago, who constantly refused to attend poor people, and when called upon to visit them, drove them from his door by a name so impious, that I shall not mention it. This sordid conduct is sometimes aggravated by being exercised towards old patients, who have been unfortunate in business, in the evening of their lives. We owe much to the families, who employ us in the infancy of our knowledge and experience. It is an act, therefore, of ingratitude, as well as avarice, to neglect

them under the pressure of age and poverty, as well as sickness, or to consign them over to young physicians or quacks, who are ignorant of their constitutions and habits, and strangers to the respect they commanded in their better days.

2d. Avarice, in physicians, discovers itself in their extravagant charges, and in the means which are sometimes employed to obtain payment for such debts as are just. I have heard of a surgeon in the British army, who made it a practice to take the swords of the officers, as a security for the future payment of his bills. A physician, in this country, once took, by legal force, a solitary cow from a poor woman, on which she chiefly relied for the subsistence of her family. But it is after the death of the master of a family, that the avarice of physicians appears in its most distressing and cruel forms. Behold one of these harpies enter into the house of a widow, who has just been bereaved of her husband, on whose daily labour she depended for her daily support. Unmoved by her tears, and by the sight of a group of helpless children, calling upon her, perhaps in vain, for their customary articles of food, sternly he demands an immediate settlement of his accompt. Gracious Father of the human race! touch the heart of this wretch with a sudden sense of thy justice, and cause him to feel the enormity of his crime! But if, by persevering in habits of extortion, he has forfeited thy reclaiming mercy, extend thy pity to the family which thou hast sorely afflicted, and discover to them, by some unexpected act of

thy bounty, that thou art indeed a friend to the fatherless and the widow's God!

3d. To undertake the charge of sick people, and to neglect them afterwards, is a vice of a malignant dye in a physician. Many lives have been lost, by the want of punctual and regular attention to the varying symptoms of diseases; but still more have been sacrificed by the criminal preference, which has been given by physicians to ease, convivial company, or public amusements and pursuits, to the care of their patients. The most important contract that can be made, is that which takes place between a sick man and his doctor. The subject of it is human life. The breach of this contract by wilful negligence, when followed by death, is murder; and it is because our penal laws are imperfect, that the punishment of that crime is not inflicted upon physicians who are guilty of it.

4th. It is a vice in a physician to study more to please than to cure his patients. Dr. Young calls such preachers, as prefer pleasing their hearers to instructing and reforming them, "downy doctors." The same epithet may be applied to physicians, who prescribe for the whims of their patients, instead of their diseases. The life of a sick man should be the first object of a physician's solicitude, and he is not prepared to do his duty, until he can sacrifice his interest and reputation to preserve it.

5th. The last vice I shall mention under this head, is, obstinacy in adhering to old and unsuccessful modes of practice, in diseases which have yielded to

new remedies. Dr. Chisholm relates several flagrant instances of this vice, in the treatment of the yellow fever, in his late essay upon that pestilential disease in the West Indies. This obstinacy was the more criminal in the physicians alluded to, as they had constantly before their eyes, numerous and irrefragable evidences of the success of a different mode of practice, which the doctor had introduced into the islands. Many similar instances of this hoary-headed indifference to human life, are to be met with in all countries.

III. Agreeably to our order, I should proceed next to mention the vices of physicians towards their professional brethren; but for obvious reasons, I shall pass over this disagreeable part of our subject in silence, and hasten, with pleasure, to speak of the *VIRTUES* of physicians.

Here a delightful field opens to our view. It will be impossible to mark every part of it with our footsteps. I shall, therefore, only mention those virtues, which are most conspicuous and practical in the members of our profession.

1. Piety towards God has, in many instances, characterized some of the first physicians in ancient and modern times. Hippocrates did homage to the gods of Greece, and Galen vanquished atheism for awhile, in Rome, by proving the existence of a god from the curious structure of the human body. Botallus, the illustrious father of bloodletting, in Europe, in a treatise, "*de munere medici et ægri*," advises a physician, when called to visit a patient,

never to leave his house, without offering up a prayer to God, for the success of his prescriptions. Cheselden, the famous English anatomist, always implored, in the presence of his pupils, the aid and blessing of heaven upon his hand, whenever he laid hold of an instrument, to perform a surgical operation. Sydenham, the great luminary and reformer of medicine, was a religious man. Boerhaave spent an hour in his closet, every morning, in reading the scriptures, before he entered upon the duties of his profession. Hoffman and Stahl were not ashamed of the gospel of Christ; and Dr. Haller has left behind him an eloquent defence of it in a series of letters to his daughter. Dr. Lobb exhibited daily, for many years, to the citizens of London, his reliance upon divine aid to render his practice successful, by inscribing "*Deo adjuvante*" upon his family arms which were painted upon his chariot. Dr. Fothergill's long life resembled an altar, from which, incense of adoration and praise ascended daily to the Supreme Being. Dr. Hartley, whose works will probably perish, only with time itself, was a devout Christian. To the record of these medical worthies, I shall add but one remark: and that is, the weight of their names alone, in favour of revelation, is sufficient to turn the scale against all the infidelity, that has ever dishonoured the science of medicine.

2. Humanity has been a conspicuous virtue among physicians in all ages and countries. It manifests itself,

1st. In their sacrifices and sufferings, in order to acquire a knowledge of all the different branches of medicine. For this, they spend months, and years, in dissecting dead bodies; or in the smoke of laboratories; or in visiting foreign, and sometimes uncivilized countries; or in making painful and expensive experiments upon living animals. Many physicians have contracted diseases, and some have perished in these loathsome and dangerous enterprises; all of which are intended for the benefit of their fellow creatures.

2d. No sooner do they enter upon the duties of their profession, than they are called upon to exhibit their humanity by sympathy, with pain and distress in persons of all ranks. It is this heaven-born principle which produces such acts of self-denial of company, pleasure, and sleep, in physicians. It is this which enables them to sustain the extremes of heat and cold, and the most laborious exertions of body and mind. Hippocrates, who furnished the earliest, has likewise exhibited the most prominent, example of this divine form of humanity, of any physician that ever lived. One while we behold him travelling through the cities and provinces of Greece, dispensing health and joy wherever he went. Again, we see him yielding to the solicitations of neighbouring princes, and extending the blessings of his skill to foreign nations. "There was but one sentiment in his soul," says Galen, "and that was the *love of doing good*; and in the course of his long life, but a single act, and that was the *relieving the sick*."

It was, from the influence which his humane feelings had upon his judgment, that he has left the following remark upon record, in speaking of the education of a young man, intended for the study of medicine. "Does he suffer," says the venerable man, "with the sufferings of others? does he naturally feel the tenderest commiseration for the woes incident to his fellow mortals? you may reasonably infer that he will be passionately devoted to an art, that will instruct him in what manner to afford them relief." This noble sympathy, in physicians, is sometimes so powerful, as to predominate over the fear of death; hence we observe them to expose, and frequently to sacrifice their lives, in contending with mortal epidemics. The United States have lately furnished numerous instances of death in physicians, from their ardent attachment to their patients. The graveyards of Philadelphia alone, hold the precious relics of three and twenty members of our profession, who have died martyrs to this affectionate and heroic sympathy, since the year 1793.

3d. Humanity in physicians manifests itself in gratuitous services to the poor. The greatest part of the business of Dr. Sydenham, seems to have been confined to poor people. It is true, he now and then speaks of a noble lady, and of a learned prelate in the history of cases, but these were accidental patients. The fashionable part of the citizens of London were deterred from consulting him, by the clamours excited against his new practice, by his medical brethren, particularly by Dr. Morton,

whom Dr. Haller calls "the rival and adversary" of this excellent man. Dr. Boerhaave did a great deal of business among the poor. In his attendance upon them, he discovered, it is said, more solicitude and punctuality, than in his attendance upon his rich patients. Being asked by a friend his reason for so doing, he answered, "I esteem the poor my *best* patients, for God is their paymaster." Dr. Cullen spent the first years of his long and useful life, in doing business, for which he was never paid; and when he rose to the first rank in his profession, did not forget that humble class of people, from whom he derived his knowledge and reputation. Dr. Fothergill devoted an hour every morning, before he left his house, to prescribing for the poor; and in his annual visit to Leahall, in Cheshire, he spent one day of every week, in the same humane and benevolent business. Public dispensaries were projected, and are still conducted, chiefly by physicians. These excellent institutions mark an era in the history of human beneficence. They yearly save many thousand lives.

4th. Humanity in physicians discovers itself in *pecuniary* contributions, as well as in advice, for the relief of the poor. I have read an account of a physician in England, who gave all the fees he received on a Sunday, to charitable purposes. Dr. Heberden's liberality to the poor was so great, that he was once told by a friend, that he would exhaust his fortune. "No," said he, "after all my charities, I am afraid I shall die *shamefully* rich." Dr. Fother-

gill once heard of the death of a citizen of London, who had left his family in indigent circumstances. As soon as he was interred, the doctor called upon his widow, and informed her, that he had, some years before, received thirty guineas for as many visits he had paid her husband in the days of his prosperity. "I have since heard," said the doctor, "of his reverse of fortune. Take this purse. It contains all that I received from him. It will do thy family more good, than it will do me." A poor curate, who lived in the city of London upon fifty pounds a year, called upon this worthy man for advice for his wife and five children, who were ill of an epidemic disease, then prevalent in that city. The doctor, without being requested, visited them the next day, and attended them daily till they were all cured. The curate, by great exertions, saved a trifling sum of money, which he offered to the doctor, as a compensation for his services. He refused to receive it—but this was not all—he put ten guineas into his hand, and begged him, at the same time, to apply to him for relief in all his future difficulties.* Similar anecdotes of his liberality might be multiplied without end. It is said, he gave away one half of all the income of his extensive and lucrative business, amounting, in the course of his life, to one hundred thousand pounds. What an immense interest in honour and happiness must this sum produce to him at the general judgment! With what

* Lettsom's Life of Fothergill.

unspeakable gratitude and delight, may we not suppose the many hundred, and perhaps thousand persons, whom he has fed, clothed, and rescued from prison and death by his charities, will gaze upon their benefactor in that solemn day, while the Supreme Judge credits them all, as done to himself, in the presence of an assembled world.

III. Physicians have been distinguished in many instances for their patriotism. By this virtue, I mean a disposition to promote all the objects of utility, convenience, and pleasure; and to remove all the evils of the country to which we belong. It embraces all the interests and wants of every class of citizens, and manifests itself in a great variety of forms. I shall briefly enumerate them.

1st. It appears in acts of liberality to promote science, and particularly medicine. The British Museum was the gift of a physician to the British nation. Dr. Radcliff founded a library at Oxford, and bequeathed three hundred pounds to be applied to the maintenance of a constant succession of students of medicine, who should spend three years in foreign countries, in search of medical knowledge. Dr. Fothergill gave one hundred guineas a year to Dr. Priestley to defray the expenses of his chemical laboratory. But the patronage afforded to science by that great man, was not confined to his own country. The Pennsylvania hospital will preserve, I hope, to the end of time, a testimony of his munificence, in the elegant casts and paintings of the gravid ute-

rus, which compose a part of the museum of that institution.

2d. Patriotism in physicians has discovered itself in attempts and plans to obviate the prevailing diseases of their native country. Hippocrates was once invited by the kings of Illyria and Peonia, to come to the relief of their subjects, who were afflicted by the plague. He inquired of the messenger, into the course of the winds in those countries. Upon being informed of their direction, he concluded the same disease would visit Athens, and declined the honour intended him, that he might devote himself immediately to the means of saving a city of his own country from destruction. A physician delivered Calcutta from an epidemic malignant fever, by pointing out a new and effectual mode of conveying off its filth. The city of Frankfort, in Germany, was saved from an occasional pestilence, by a physician tracing its origin to a number of offensive privies. The physicians of all the cities in the United States (Philadelphia excepted,) have with nearly perfect unanimity, derived our annual bilious plague from domestic sources, and recommended remedies for it, which, if adopted, would insure a perpetual exemption of our country from it. The many excellent treatises upon the means of preventing diseases, from errors in diet, dress, exercise and the like, that have been published by physicians in all ages and countries, show that self-love is a weaker principle in them, than a regard to the general health and welfare of their fellow citizens.

3d. Physicians have contributed largely to the prosperity of their respective countries, by recommending and patronizing plans for promoting agriculture, commerce, morals and literature. Dr. Fothergill's garden at Upton, was a kind of hotbed of useful plants, for the whole nation. His active mind was always busy in devising public improvements that were calculated to increase the wealth, the knowledge, the happiness and even the elegance of his country. Dr. Black, Dr. Home, and Dr. Hunter, have all benefited the British empire, by the application of their chemical researches to national purposes, particularly to agriculture and manufactures.

4th. Physicians have in all ages exhibited an attachment to the independence, peace, and liberties of their country. Hippocrates by his influence in forming an alliance with the Thessalians, delivered his native island of Cos from a war with the Athenians. Dr. Fothergill spent years of anxiety in fruitless efforts to prevent the effusion of kindred blood, in the war which separated the United States from Great Britain. He likewise suggested a plan for securing a perpetual peace between the nations of Europe, by the ties of interest, founded upon commerce. There was not a state in our union, during the late struggle with Great Britain for our independence, which did not furnish instances of this form of patriotism in physicians. Warren and Mercer both turned their backs upon profitable and extensive business, when they led their countrymen into the field, and fell at the head of their troops, bravely

fighting for the liberties of their country. Many of the most distinguished characters in medicine, in Europe, are friends to liberty; and a great majority of the physicians in the United States, are warmly attached to the principles and form of our excellent republican constitution.

If you feel, gentlemen, in hearing these details of the exploits of the illustrious worthies of our profession, as I do in relating them, you will not regret the day, you devoted yourselves to the study of medicine.

But there are certain minor virtues which have adorned the characters of physicians, that should not pass unnoticed in this place.

1st. They have often discovered the most extraordinary instances of candour, in acknowledging mistakes both of opinion and practice. Hippocrates has left a testimony against himself, of the loss of a patient, from his inability to distinguish between a suture, and a fracture of the skull; and Dr. Sydenham tells us, that he generally lost several of the first patients whom he visited in a new epidemic. This candour is the more meritorious in physicians, as it seldom fails to lessen their credit with the world.

2d. The most disinterested and exalted acts of generosity, have often been exhibited by physicians to each other. Dr. Friend was once confined for an offensive act against the British government. During this time, Dr. Mead attended his patients. After his liberation, Dr. Mead called upon him, and gave him several thousand guineas. "Take

them," said Dr. Mead. "They are not mine. I received them all from your patients." This act was the more meritorious, as they were competitors for business and fame. Similar instances of generosity are common among physicians, though upon a less scale, in all countries.

3d. The most delicate friendships have often subsisted between physicians. Dr. Fothergill and Dr. Russel were cotemporaries in the college of Edinburgh. They passed the greatest part of their lives in a constant exchange of kind offices. The eulogium upon Dr. Russel, delivered before the Society of Physicians, in London, by Dr. Fothergill, does equal honour to the characters of each of them.

4th. Physicians often perform essential services to the families in which they are employed, by directing the education of their children, by preventing or healing family disputes, and by their advice and influence in the pursuits and management of the common affairs of life.

5th. As sons, brothers, and parents, physicians have often exhibited the most shining examples of domestic virtue. Dr. Tissot was invited to Warsaw, by the late king of Poland, in order to become the physician of his court. He prepared immediately to accept the offer; but upon being told by his aged father, that he would not accompany him, the doctor declined the royal invitation, and ended his days in an obscure situation, in his native country. One of the last journeys of Dr. Fothergill's life was to pay a tribute of respect to his father's grave in

Yorkshire. He was accompanied in this journey by his sister, who had been his companion and house-keeper for forty years. I shall give an account of this pious excursion in his own words. "To see that our father's sepulchre was not laid open to the beasts of the field, but secured from the ravages of neglect, was to us a pleasing duty. Firmly persuaded that we had not the least cause to mourn upon his account; and nothing left more becoming us, than to call to mind his precepts and example, we left the solitary spot with hearts full of reverent thankfulness, that *such* was our father, and that we were *so far* favoured, as to be able to remember him with gratitude and affection."

From a review of what has been said of the vices and virtues of physicians, the following inferences may fairly be deduced.

1st. That their vices are fewer in number, and of less magnitude, than their virtues.

2d. That the profession of medicine, favours the practice of all the religious, moral and social duties. A physician, of course, who is a bad man, is more inexcusable than a bad man of any other profession, a minister of the gospel excepted.

3d. That the aggregate mass of physical misery, that has existed in the world, owes more of its relief to physicians, than to any other body of men.

Let us learn then, gentlemen, duly to appreciate the profession we have chosen, by acting agreeably to the duties it imposes, and the honours it has acquired. With this short application of the subject

of our lecture, I bid you welcome to our school of medicine! The door you have entered, and the room you now occupy, are devoted to Science and Humanity. Let nothing incompatible with the time and attention which they claim, ever find a place within these walls. As far as it shall please God to enable me, by the continuance of my health, you may rely upon my seconding your diligence, and that I shall consider my obligations to you, as my chief duty during the winter.

LECTURE VI.

UPON THE CAUSES WHICH HAVE RETARDED THE
PROGRESS OF MEDICINE, AND THE MEANS OF
PROMOTING ITS CERTAINTY AND GREATER
USEFULNESS.

Delivered November 3d, 1801

GENTLEMEN,

THE imperfection of medicine is a common subject of complaint, by the enemies of our profession. It has been admitted by physicians. The design of this lecture is, to enumerate the causes which have retarded its progress; and to point out the means of promoting its certainty, and greater usefulness. The subject is an interesting one, and highly proper as an introduction to a course of lectures upon the institutes and practice of medicine. I shall begin by briefly enumerating the causes which have retarded the progress of our science.

1st. The first cause, that I shall mention is, connecting it with such branches of knowledge, as have but a slender relation to it. What affinity have the abstruse branches of mathematics with medicine? and yet, years have been spent in the study of that science by physicians; and volumes have been

written to explain the functions of the body, by mathematical demonstrations.

2d. The neglect to cultivate those branches of science, which are most intimately connected with medicine. These are chiefly, Natural History, and Metaphysics. In the former, I include, not only botany, zoology, and fossiology, but comparative anatomy and physiology. In the latter, I include a simple history of the faculties and operations of the mind, unconnected with the ancient nomenclature of words and phrases, which once constituted the science of metaphysics.

3d. The publication of systems and discoveries in medicine in the Latin language. Our science is interesting to all mankind; but by locking it up in a dead language, which is but partially known, we have prevented its associating with other sciences, and precluded it from attracting the notice and support of ingenious men of other professions. While the study of chemistry was confined exclusively to physicians, it was limited in its objects, and nearly destitute of principles. It was from the laboratories of private gentlemen, and particularly of Priestley, Cavendish, and Lavoisier, that those great discoveries have issued, which have exalted chemistry to its present rank and usefulness among the sciences. The same remark applied to agriculture and manufactures, while they were carried on by the daily labour of men who derived their subsistence from them. It is only since they have become a part of the studies and employment of speculative men of general know-

ledge, that they constitute the basis of individual and national prosperity and independence.

4th. An undue attachment to great names. Hippocrates, Galen, and Aræteus, among the ancients; Boerhaave, Cullen, and Brown, among the moderns; have all, in their turns, established a despotism in medicine, by the popularity of their names, which has imposed a restraint upon free inquiry, and thereby checked the progress of medicine, particularly in the ages and countries, in which they have lived.

5th. An undue attachment to unsuccessful, but fashionable, modes of practice. Where a medicine does not generally cure a disease, in its recent state, it is either an improper remedy, or it is given at an improper time, or in an improper quantity. In such cases, a mode of practice, directly opposed to the former one, has sometimes proved successful. This occurred in a remarkable manner, when cool air and cold drinks succeeded the hot regimen, in the treatment of the smallpox. The same happy effects have attended the use of bleeding in the inflammatory state of the dropsy, after stimulating medicines had been given to cure it, for many years to no purpose.

6th. Indolence and credulity in admitting things to be true, without sufficient examination. The acrid humors of Boerhaave would not have prevailed so long in our systems of pathology, had the blood been sooner subjected to a natural and chemical analysis; nor would a belief in the specific nature of

the plague, or the competency of quarantines to prevent the importation of the yellow fever, have been so universal, in the beginning of the nineteenth century, had the facts, which are numerous and plain upon those subjects, received a faithful and candid investigation.

7th. Neglect in recording the rise, progress, and symptoms of epidemic diseases, and of certain circumstances essentially connected with them. The loss which our science has sustained from the want of regular and connected histories of epidemics, may be estimated by the value of the knowledge which it has gained from the writings of Ballonius and Riverius in France, and of Sydenham, Winttingham, and Huxham, in Great Britain. The yellow fever has prevailed, in this city, four times between the years 1699 and 1793; and yet no history of its origin, symptoms, or treatment, has been left to us by any of the physicians who witnessed it; nor is there any record but one, of the times of its appearance, to be found, except in the letter-books of merchants, and in ancient newspapers. Had our ancestors in medicine transmitted to us the history of that epidemic, with an account of the diseases which preceded it, and of the changes in the air, and in the animal and vegetable kingdoms, with which it was accompanied, it is probable, we might have predicted the malignant constitution of the atmosphere that produced the fevers of 1793, and of subsequent years, and by removing the filth of our cities, have thereby prevented them. Upon this

subject, it may be added, that it is by studying diseases as they have appeared, in different countries, and in different years, that we shall be able to understand and cure them, much better than by reading abstract treatises upon them in systems of medicine, in which no notice is taken of their relations to time and place. Dr. Cleghorn's Account of the Diseases of Minorca, has outlived many hundred publications upon the diseases which he has described. Such excellent books owe their duration and fame to the difference which they mark in the symptoms and mode of cure of diseases in different countries, and in successive years. Even the signs of life and death, are varied by both those circumstances. In a malignant fever, which prevailed at Cuneum, in the years 1778, and 1784, a mortification in the extremity of the spine and buttocks, was always the sign of a recovery; while the same symptom as uniformly preceded death, in a fever which prevailed at Modena, in the year 1781.* I shall mention several other instances of the same signs being followed by an opposite issue in different years, in the late pestilential epidemic of our country.

8th. Neglect to record *minute* symptoms in the history of diseases. Hippocrates and Sydenham are justly exempted from this charge against our profession. Had their method of examining and describing diseases been generally followed, we should

* Burserus, p. 497.

not, this day, complain of so much imperfection in our science. A disease is a lawless evil. To understand its nature from its symptoms, it should be inspected every hour of the day and night. It is, during the latter period, fevers most frequently have their exacerbations and remissions; and it is only by accommodating our remedies to them, that the practice of medicine can become regular and successful. How much is to be learned from sitting up with sick people, may be known from conversing with sensible nurses. I have profited by their remarks; and I have often imposed their duties upon my pupils, in order, among other things, to increase their knowledge of diseases.

9th. The neglect to discriminate between the remote and exciting causes of diseases. Under the influence of this negligence, the death of many persons from the miasmata which produce the yellow fever, has often been ascribed to the full meal, the intoxicating draught, the long walk, or the night air, which excited them into action.

10th. The neglect to ascertain the nature, and strength of diseases by the pulse, or an exclusive reliance upon its frequency for that purpose, and that too only in morbid affections of the sanguiferous system.

11th. The neglect to employ the passions as remedies in the cure of diseases. An accidental paroxysm of joy, fear, or anger, has often induced a sudden and favourable crisis in cases of doubtful issue. Quacks owe a great deal of their occasional

success, to their command over the feelings of their patients. The advantages to be derived from them might be an hundred times greater, were they properly directed by regular bred physicians.

12th. An undue reliance upon the powers of nature in curing diseases. I have elsewhere endeavoured to expose this superstition in medicine, and shall in another place, mention some additional facts to show its extensive mischief in our science.

13th. The practice among physicians of waiting till diseases have evolved their specific characters before they prescribe for them, thus allowing them time to form those effusions, and obstructions, which frequently produce immediate death, or a train of chronic complaints.

14th. The great and unnecessary number of medicines which are used for the cure of diseases. Did we prescribe more for their state, and less for their name, a fourth part of the medicines now in use, would be sufficient for all the purposes intended by them. By thus limiting their number, we should acquire a more perfect knowledge of their virtues and doses, and thereby exhibit them with more success.

15th. The exhibition of medicines, without a due regard to the different stages of diseases. Bark, opium, and mercury, are remedies, or poisons, according as they are accommodated, or not, to the existing state of the system. The same may be said of many of the most simple articles in the materia medica. Bathing the feet in warm water, often pre-

vents a fever in its forming state. The same remedy, when used after the fever is formed, often induces delirium, and other symptoms of a dangerous and alarming nature.

16th. An exclusive dependence upon some one medicine, or one class of remedies. Bleeding, purges, and vomits, sweating medicines, hot and cold water, ice and snow, baths of different kinds, opium and bark, crude quicksilver, and calomel, iron and copper, acids and alkalies, lime and tar water, fixed air and oxygen, have all been used separately by physicians, in diseases which required in their occasional changes, the successive application of many different medicines of opposite virtues, or a variety of the same class of medicines. This exclusive attachment to one set of remedies, has not been confined to individual physicians. Whole nations are as much distinguished by it, as they are by language and manners. In England, cordial and sweating medicines; in France, bleeding, injections, and diluting drinks; in Germany, alterative medicines; in Italy, cups and leeches; in Russia, hot and cold baths; and in China, frictions; constitute the predominating and fashionable remedies in all their respective diseases.

17th. The neglect to inquire after, and record, cures which have been performed by time, by accident, or by medicines, administered by quacks, or by the friends of sick people. By examining the precise condition of the system, and stage of diseases, in which such remedies have produced their

salutary effects, and afterwards regulating them by principles, great additions might have been made to our stock of medical knowledge.

18th. The neglect to dissect, and examine, morbid bodies after death; and where this has been done, mistaking the effects, for the causes of diseases.

19th. The attempts which have been made to establish regular modes of practice in medicine, upon experience without reasoning, and upon reasoning without experience.

20th. The dependent state of physicians, upon public opinion for their subsistence. It is this which has checked innovation in the practice of medicine, and too often made physicians the apothecaries of their patients. To a dependence of our profession upon commerce, we are in part to ascribe the belief of the importation of pestilential diseases in nearly all the large cities in Europe and America.

21st. The interference of governments in prohibiting the use of certain remedies, and enforcing the use of others by law. The effects of this mistaken policy has been as hurtful to medicine, as a similar practice with respect to opinions, has been to the Christian religion.

22d. Conferring exclusive privileges upon bodies of physicians, and forbidding men, of equal talents and knowledge, under severe penalties, from practising medicine within certain districts of cities and countries. Such institutions, however sanctioned by

ancient charters and names, are the bastiles of our science.

23d. The refusal in universities to tolerate any opinions, in the private or public exercises of candidates for degrees in medicine, which are not taught nor believed by their professors, thus restraining a spirit of inquiry in that period of life which is most distinguished for ardour and invention in our science. It was from a view of the prevalence of this conduct, that Dr. Adam Smith, has called universities the "dull repositories of exploded opinions." I am happy in being able to exempt the university of Pennsylvania, from this charge. Candidates for degrees are here not only permitted to controvert the opinions of their teachers, but to publish their own, provided they discover learning and ingenuity in defending them.

24th. The last cause I shall mention, which has retarded the progress of medicine, is the division of diseases into genera and species by means of what has lately received the name of nosology. Upon this part of our subject, I shall be more particular than was necessary, under any of the former heads of our lecture; for no one of the causes, which have been assigned of the imperfection of our science, has operated with more effect than the nosological arrangement of diseases. To expose its unfriendly influence upon medicine, it will be proper first to repeat in part, what I have published in the fourth volume of my *Inquiries and Observations*, before I proceed to mention the manner of its operation.

1st. Nosology presupposes the characters of diseases to be as fixed as the characters of animals and plants: but this is far from being the case. Animals and plants are exactly the same in all their properties, that they were nearly six thousand years ago, but who can say the same thing of any one disease? They are all changed by time and still more by climate, and a great variety of accidental circumstances. But the same morbid state of the system often assumes in the course of a few days, all the symptoms of a dozen different genera of diseases. Thus a malignant fever frequently invades every part of the body, and is at once, or in succession, an epitome of the whole class of *prexiæ* in Dr. Cullen's Synopsis.

2d. The nosological arrangement of diseases has been attempted from their causes and seats. The remote causes of diseases all unite in producing but one effect, that is irritation and morbid excitement, and of course are incapable of division. The proximate cause of diseases, is an unit; for whether it appears in the form of convulsion, spasm, a prostration of action, heat, or itching, it is alike the effect of simple diseased excitement. The impracticability of dividing diseases into genera and species, from their seats, will appear when we consider the feeble state of sensibility in some of the internal organs, and the want of connexion between impression and sensation in others; by which means there is often a total absence of the sign of pain, or a deceitful and capricious translation of it to another part of the

body, in many diseases. In the most acute stage of inflammation in the stomach, there is frequently no pain, vomiting, nor sickness. The liver in the East Indies, undergoes a general suppuration, and sometimes a partial destruction, without pain, or any of the common signs of local inflammation. Dr. Chisholm, in his essay upon the malignant West India fever, mentions its fatal issue in two sailors whom he dissected: in one of whom he discovered great marks of inflammation in the lungs, and in the other, a mortification of the right kidney; but in neither of them, he adds, was perceived the least sign of disease in those viscera, during their sickness*. Baglivi found a stone in the kidney of a man, who had complained of a pain only in the kidney of the opposite side, during his life. I have lost two patients with abscesses in the lungs, who complained only of a pain in the head. Neither of them had a cough, and one of them had never felt any pain in his breast or sides. Many hundred facts of a similar nature, are to be met with in the records of medicine. Even in those cases where impression does not produce sensations in remote parts of the body, it is often so diffused by means of what has been happily called, by Dr. Johnson, "an intercommunion of sensation," that the precise seat of a disease is seldom known. The affections of the bowels and brain furnish many proofs of the truth of this observation.

Errors in theory, seldom fail of producing errors

* Vol. i. p. 184.

in practice. Nosology has retarded the progress of medicine in the following ways.

1st. It precludes all the advantages which are to be derived from attacking diseases, in their forming state, at which time they are devoid of their nosological characters, and are most easily and certainly prevented or cured.

2d. It has led physicians to prescribe exclusively for the names of diseases, without a due regard to the condition of the system. This practice has done the most extensive mischief, where a malignant or inflammatory constitution of the atmosphere has produced a single or predominating epidemic, which calls for the same class of remedies, under all the modifications which are produced by a difference in its seat, and exciting causes.

3d. It multiplies unnecessarily the articles of the materia medica, by employing nearly as many medicines, as there are forms of disease.

I know it has been said, that by rejecting nosology, we establish indolence in medicine, but the reverse of this assertion is true; for if our prescriptions are to be regulated chiefly by the force of morbid excitement, and if this force be varied in acute diseases by a hundred different circumstances, even by a cloud, according to Dr. Lining, lessening, for a few minutes, the light and heat of the sun, it follows, that the utmost watchfulness and skill will be necessary to accommodate our remedies to the changing state of the system.

I have thus, gentlemen, briefly pointed out the

principal causes which have retarded the progress of our science. It remains now, that I mention the means of promoting its certainty and greater usefulness. It will readily occur, that this is to be done, by avoiding all the causes, which have produced its present state of imperfection. I shall select, from those causes, a few that have been hinted at only, and which, from their importance, require further amplification.

1st. Let us strip our profession of every thing that looks like mystery and imposture, and clothe medical knowledge in a dress so simple and intelligible, that it may become a part of academical education in all our seminaries of learning. Truth is simple upon all subjects, but upon those which are essential to the general happiness of mankind, it is obvious to the meanest capacities. There is no man so simple, that cannot be taught to cultivate grain, and no woman so devoid of understanding, as to be incapable of learning the art of making that grain into bread. And shall the means of preserving our health by the culture and preparation of aliment, be so intelligible, and yet the means of restoring it, when lost, be so abstruse, as to require years of study to discover and apply them? To suppose this, is to call in question the goodness of the Supreme Being, and to believe that he acts without unity and system in all his works. In no one of the acts of man do we behold more weakness and error, than in our present modes of education. We teach our sons words, at the expense of things. We teach them

what was done two thousand years ago, and conceal from them what is doing every day. We instruct them in the heathen mythology, but neglect to teach them the principles of the religion of their country. We teach them to predict eclipses, and the return of comets, from which no physical advantages worth naming, have ever been derived; but we give them no instruction in the signs which precede general and individual diseases. How long shall the human mind bend beneath the usages of ancient and barbarous times? When shall we cease to be mere scholars, and become wise philosophers, well informed citizens, and useful men?

The essential principles of medicine are very few. They are moreover plain. There is not a graduate in the arts, in any of our colleges, who does not learn things of more difficulty, than a system of just principles in medicine.

All the morbid effects of heat and cold, of intemperance in eating and drinking, and in the exercises of the body and mind, might be taught with as much ease as the multiplication table.

All the knowledge which is attainable of diseases by the pulse, might be acquired at a less expense of time and labour, than is spent in committing the contents of the Latin grammar to memory.

The operation of bleeding, might be taught with less trouble than is taken to teach boys to draw, upon paper or slate, the figures in Euclid.

A knowledge of the virtues and doses of the most active and useful medicines, might be acquired with

greater facility, and much more pleasure, than the rules for composing syllogisms laid down in our systems of logic.

In support of the truth of the opinions I am now advancing, let us take a view of the effects of the simplicity, which has been introduced into the art of war, by one of the nations of Europe. A few obvious principles have supplied the place of volumes upon tactics; and private citizens have become greater generals, and peasants more irresistible soldiers in a few weeks, than their predecessors in war were, after the instruction and experience of fifteen or twenty years. Could changes equally simple and general be introduced by means of our schools into the practice of medicine, no arithmetic could calculate its advantages. Millions of lives would be saved by it.

In thus recommending the general diffusion of medical knowledge, by making it a part of an academical education, let it not be supposed that I wish to see the exercise of medicine abolished as a regular profession. Casualties which render operations in surgery necessary, and such diseases as occur rarely, will always require professional aid; but the knowledge that is necessary for these purposes may be soon acquired; and two or three persons, separated from other pursuits, would be sufficient to apply it to a city consisting of forty thousand people.

2d. To promote the certainty and greater usefulness of our science, let us study the premonitory signs of diseases, and apply our remedies to them,

before they are completely formed. At this time they generally yield to the most simple and common domestic medicines; for there is the same difference between their force, in their forming state, and after they have put forth their strength in the reaction of the system, that there is between the strength of an infant, and of a full grown man. This important truth has been long, and deeply impressed upon my mind; and many of you can witness, that I have often recommended it to your attention. To all physical evils I believe there are certain precursors, which if known and attended to, in due time, would enable us to obviate them. Premonitory signs I am sure occur before all diseases. They are most evident in fevers, in the gout, in apoplexy, epilepsy, melancholy, and madness. They even obtrude themselves upon our notice, as if to demand the remedies which are proper to arrest the impending commotions in the system. This is more obviously the case in those diseases, which, when formed, are difficult to cure. In one of my publications in the year 1793, I asserted, that the yellow fever was as much under the power of medicine as the influenza, or an intermitting fever. This was strictly true in the beginning of the epidemic of that year, and continued to be so, until a belief in the prevalence of a fever of less danger, produced delays in sending for physicians, or negligence in using the simple remedies that were recommended in the forming state of the reigning epidemic. In our lectures upon the practice of physic, I shall mention those remedies, and shall repeat to you

the importance of watching the exact time in which they may be exhibited with safety and success.

3d. Let our inquiries be directed with peculiar industry and zeal, to complete the natural and morbid history of the pulse. It is the string which vibrates most readily with discordant motions in every part of the body. Were I allowed to coin a word, I would call the pulse the *nosometer* of the system. There is the same difference in the knowledge of diseases which is obtained by it, and by their other signs, that there is between speech, and inarticulate sounds. The eyes and countenance cannot always be inspected, without exposing sick people to pain and danger from the irritation of light. The tongue cannot be seen in children, nor in the delirium of a fever. Its appearance moreover is liable to be so changed by aliment and drinks as to obliterate the effect of diseases upon it. It is often unsafe to preserve the excretions, and when examined, they afford uncertain marks of the state of the system. None of these objections apply to the pulse. It can be felt in persons of all ages, at all times of the day and night, and in all diseases, and always without any inconvenience to a patient. I shall shortly lay before you the facts and reasonings which have been the result of my observations upon it. They are as yet limited, and very imperfect; but they will serve, I hope, like a distant view of a new and fertile country, to excite your desires to explore it, and to add its products to the treasures of medicine.

The fourth and last means of promoting certainty in medicine, and its more extensive usefulness, is to cherish a belief, that they are both attainable and practicable. "Knowledge" it has been justly said, "is power, and philosophy, the empire of art over nature." By means of the knowledge which has lately been obtained, men now visit the upper regions of the air and the bottom of the ocean, as if they were a part of their original territory. Distance and time have likewise become subject to their power, by the invention of instruments for accelerating the communication of new and important events. Equally great, and far more interesting have been the triumphs of medicine within the last thirty years. Fevers have been deprived of their mortality by attacking them in their forming state; and where this has not been done, they have been made to yield to depleting, or tonic remedies, where they have been properly timed. The smallpox has been disarmed of its remnant of power over human life, by means of vaccine inoculation. But medicine has lately done more. It has discovered those fevers, which have desolated cities and countries, to be derived, in all cases, from putrid and local exhalations, and that they are propagated only by a morbid constitution of the atmosphere. It is true, this discovery has not been generally admitted, but the error, which is opposed to it, has received a blow from the publications of our countrymen, Dr. Mitchell, Dr. Miller and Mr. Webster, from which it cannot recover. Its total destruction will be followed by the same

extinction of pestilence, which commerce has produced of famine in Europe, by the level it has introduced of the means of subsistence. The gout, dropsies, hemorrhages, pulmonary consumption, are now cured, when they are treated as symptoms of general fever. Cancers are easily prevented, by the extirpation of tumors in glandular parts of the body. The tetanus has seldom resisted the efficacy of stimulating medicines, where an exclusive reliance has not been had upon any one of them. But modern discoveries have not stopped here. They have taught us to renew the motions of life, where they appeared to be extinguished by death. Hitherto, resuscitation has been confined only to persons, who have been supposed to be dead from drowning, or from other accidents; but the time, I believe, will come, when the labours of science and humanity will be employed in recovering persons, who appear to die from other causes. We are authorized to adopt this opinion by the late discovery of the causes of animal life, and by the light which the external and internal appearances of the body after death from fevers, has thrown upon this subject. Motion, which is one of the operations of life, certainly continues, after persons, who have had fevers, are supposed to be dead. This is evident, in the accumulation of heat in particular parts of the body, in the absorption and diffusion of stagnating fluids, in the change of the countenance from a gloomy, to a placid form, in the occasional appearance of a red colour in one, or in both the cheeks, and

in the sudden diffusion of a yellow colour over the whole or a part of the body, in persons who die of malignant bilious fevers. But this motion in the external surface of the body has gone much further. Sweats have been observed to take place for many hours, and in one instance, several days after death, from the maniacal state of fever. The stiffness of the limbs, which so soon succeeds death, is probably, in many cases, the effect of general convulsion, and may hereafter be discovered to be nothing but a chronic spasm of the muscular system. The internal appearances of the body after death, from fevers, still more favour the idea of the possibility of extending the means of resuscitation with success to persons supposed to be dead from those diseases. I shall hereafter teach you, that death from a fever, is induced by one or more of the three following causes.

1st. The disorganization of parts essential to life, by means of great excess of morbid excitement, by congestion, inflammation, or mortification.

2d. By such a change in the fluids, as renders them unfit for the purposes of life.

3d. By the exhausted state of the excitability, and excitement of the system, which renders it incapable of being acted upon by the stimulus of medicine. Death, from the two last causes, rarely occurs in acute fevers, which terminate in less than eleven days. Dissections show some viscus to be in a state of disorganization, nearly in all cases; but this disorganization is often of so partial a nature, as to beget a pre-

sumption that it might have been removed by the usual remedies for resuscitation. Where life has appeared to be extinguished by the *sudden* loss of excitement or expenditure of excitability, I believe those remedies might often be employed with success. Such cases probably occur, where patients appear to die in the paroxysm of an intermittent, or under the operation of drastic vomits and purges.

From a review of what has been lately effected by our science, I cannot help admitting with Dr. Hartley, that in that happy period, predicted in the Old and New Testaments, when religion shall combine its influence upon the passions and conduct of men, with fresh discoveries in medicine, Christian Missionaries shall procure the same credit, and kind reception among Pagan and Savage nations, by curing diseases by natural means, which the Apostles obtained by curing them by supernatural power. Yes, the time, I believe, will come, when, from the perfection of our science, men shall be so well acquainted with the method of destroying poisons, that they "shall tread upon scorpions and serpents" without being injured by them*. And mothers, from their knowledge and use of the same antidotes, shall cease to restrain "a sucking child from playing on the hole of the asp, and the weaned child from putting his hand on the cockatrice's dent†." Suspended animation, if it should occur in that enlightened state of the world, shall no more expose the

* Luke, x. xix.

† Isaiah, xi. viii.

subjects of it to premature interment. Pestilential diseases shall then cease to spread terror and death over half the globe; for interest and prejudice shall no longer oppose the removal of the obvious and offensive causes which produce them. Lazarettos shall likewise cease to be the expensive and inhuman monuments of error and folly, in medicine and in government. Hospitals shall be unknown. The groans of pain, the ravings of madness, and the sighs of melancholy shall be heard no more. The cradle and the tomb shall no longer be related; for old age shall then be universal. Long, long before this revolution in the health and happiness of mankind shall arrive, you, and I gentlemen, must sleep with our fathers in the silent grave. But a consolation is still left to us under the pressure of this reflection. If we cannot share in the happiness we have destined for our posterity, we can contribute to produce it. For this purpose let us attempt a voyage of circumnavigation in medicine, by surveying all its branches in their connexion with each other. Let no part, nor function of the body, and no law of the animal economy, escape a second investigation. Let all the remote causes of diseases, and above all, let the resources of our profession in the *materia medica*, be subjected to fresh examinations. It is probable many new remedies remain yet to be discovered; but most of the old ones demand new experiments and observations to determine their doses and efficacy. It is impossible to say how much the certainty of medicine might be pro-

moted, and its usefulness increased, by a more extensive knowledge of the times, place, manner, and means of depletion; by abstracting heat from the body by means of water and ice, as well as air, and applying it by means of vapour, air, oil, salt, sand, and clay, as well as by water; by frictions impregnated with medicinal substances; by the application of stimuli to the skin and lower bowels where they cannot be retained, or after they have been ineffectually administered through the medium of the stomach; by new modes of exercise and labour, and more specific times of using them; by means of rest; by changes of air, climate, and pursuits in life; by diet; by the quality of clothing and forms of dress; by artificial sleep and wakefulness; by pleasure and pain; by simplicity, composition, succession, and rotation, in the use of chronic medicines; and by the extension of the operations of the mind to the cure of diseases. But in vain shall we enlarge our knowledge of all the remedies that have been mentioned; nay more, to no purpose would an antedeluvian age be employed in collecting facts upon all the different branches of medicine, unless they can be connected and applied by principles of some kind. Observation without principles is nothing but empiricism: and however much the contradictions and uncertainty of theories may be complained of, I believe much greater uncertainty and contradictions will be found in the controversies among physicians concerning what are said to be facts, and that too upon subjects in which the senses alone are employed to

judge between truth and error. It is by means of principles in medicine, that a physician can practise with safety to his patients, and satisfaction to himself. They impart caution and boldness alternately to his prescriptions, and supply the want of experience in all new cases. Between such a physician, and the man who relies exclusively upon experience, there is the same difference that there was between sir Isaac Newton, after he completed his discoveries in light and colours, and the artist who manufactured the glasses, by which that illustrious philosopher exemplified his principles in optics. After this account of the necessity and advantages of principles in medicine, you will not be surprised, gentlemen, at my declaring, that both duty and inclination unite to determine me to teach them from this chair. I know from experience, the consequences of contending, in this work, with ancient prejudices and popular names in medicine, with abilities greatly inferior to the contest. But I have not laboured in vain. If I have not removed any part of the rubbish which surrounded the fabric of our science, nor suggested any thing better in its place, I feel a consolation in believing, that I have taught many of your predecessors to do both, by exciting in them a spirit of inquiry, and a disposition to controvert old and doubtful opinions, by the test of experiments. I have only to request you to imitate their example. Think read, and observe. Observe, read, and think, for yourselves.

LECTURE VII.

ON THE EDUCATION PROPER TO QUALIFY A YOUNG MAN FOR THE STUDY OF MEDICINE.

Delivered November 5th, 1792.

GENTLEMEN,

BEFORE I proceed to the objects of the professorship assigned me in the university, I beg leave to solicit your attention to a few observations upon the preparatory studies which are necessary to qualify a young gentleman for the study of medicine.

To enable us to form a proper idea upon this interesting subject, let us suppose a being born and educated in one of the planets, but endowed with senses and faculties similar to ours, suddenly to be transported to our globe, in a state of ignorance of every thing he found upon it, and particularly of the language and other means of communicating knowledge, which were peculiar to its inhabitants. In this new situation, I ask, what measures he would take to become acquainted with the productions of our globe; with the physical laws which governed it; with the manner in which its inhabitants subsisted; with their individual and collective history; and with their future destiny after the termination of their present existence. Allowing what I have supposed, that

he possessed senses and faculties that were in every respect the same as ours, the following would most probably be the order of his inquiries into all the subjects which have been mentioned.

He would first make himself acquainted with the language of the country upon which he alighted.

He would acquire at the same time a knowledge of the names of those natural and artificial substances on our globe, which are obvious to the senses. He would then proceed to discover their various properties and uses. As the means of acquiring this knowledge more easily and rapidly, as well as that which is beyond the reach of his senses, he would apply himself to study the arts of reading and writing, and the most popular and useful languages. Having filled his mind with these branches of knowledge, he would next direct his inquiries into the laws of matter, as they are unfolded by philosophy; and lastly he would conclude his researches by investigating the origin, nature, and future destiny of that being who occupied the first rank upon our globe.

In some such natural order, the studies of every young man should be conducted who intends to devote himself to the study of medicine. I shall briefly, but more particularly repeat the names of these studies, and endeavour to show the necessity and importance of each of them.

The senses are the first avenues to knowledge which open in the mind. Things therefore, which are obvious to the senses, should be the first objects of education. These are either natural or artificial.

The natural objects are the animal, vegetable, and fossil, substances which surround more or less every person that comes into the world. The artificial objects are such things as are composed, by the ingenuity of man, out of the products of nature, and employed by him in the common purposes and business of life.

I appeal to every one of you gentlemen, who hear me, whether these natural and artificial objects were not the first things that arrested your attention in the years of childhood; and in those cases where it was impossible to arrive at the knowledge of all of them by means of your senses, I appeal to your recollection, whether you have not preferred the examination of pictures of them, to grammar lessons and to all the other studies which were imposed upon you in their room.

The same degrees of attention and memory which enable a boy under seven years of age to learn the names and uses of the furniture of a house, and still more, of all the letters, and of most of the words, which compose his native language, would enable him, with more ease and pleasure, to learn the nomenclature, and the more obvious properties of all the vegetable, animal, and fossil, substances which are in common use among mankind.

In favour of this early mode of teaching natural history, it is worthy of notice, that it was pursued by the Creator of the world in the garden of Eden, in the education of the father of the human race.

The next object in the order of nature, which engages the attention in early life, is the description of foreign countries. Here too permit me to appeal to your memories a second time, and to ask, whether you did not listen, at that period, with uncommon pleasure to every thing connected with that subject? Whether a traveller had not something peculiarly interesting in his conversation? and whether you have ever read any book in the course of your lives which afforded you more pleasure, than the description of the Island of Juan Fernandez, by the author of Robinson Crusoe.

As a means of acquiring each of these branches of knowledge, it will be necessary for a young man, destined for the study of medicine, to become acquainted with reading, writing, and arithmetic. They are the vehicles not only of the branches of knowledge which have been mentioned, but of every other kind of knowledge. Indeed, they may be considered as artificial senses, through which we receive as many new ideas as from any one of the senses we received from the hands of our Creator. The accuracy and perfection, therefore, of these *acquired* senses, cannot fail of being a very important part of education, and peculiarly so of that of a physician.

To read with propriety, it will be necessary to practise reading in the more advanced stages of education; for it is only after fourteen or fifteen, that a boy can perfectly comprehend the meaning of books; and until this be the case, it is impossible

for him to read so as to convey instruction and pleasure to those who hear him.

The writing a fair and legible hand, is an essential part of a preliminary education for a physician. The advantages of it have not been sufficiently appreciated. It is much more than an elegant accomplishment. Hence Dr. Beattie has well remarked, "that writing in a good hand, without contractions, "with a dark-coloured ink, exactly pointed and spelled—in straight lines, with a moderate space between "each of them, and properly subdivided into paragraphs; is better remembered than what we throw "together in confusion. For by all these circumstances, attention is fixed, and the writing, being "better understood, makes a deeper impression."*

But the inconveniences of writing a bad hand are more obvious, and extend their influence into the business of society. Dr. Fuller, in his treatise upon eruptive fevers, deplores, in pathetic terms, that he lost the benefit of all the notes upon diseases which he had committed to paper, by writing them in so small a hand, that he was unable to read them when he grew old. Dr. Haller makes an apology, in the preface to the third volume of his *Bibliotheca Medicinæ Practicæ*, for having misspelled the names of many of the authors whose works he had abridged, by declaring, that his handwriting was so much impaired by age, that neither he, nor his amanuensis, was able to read, three months afterwards, what he

* Moral Science, ch. 1. § 6.

had written. I make no allowance here for the supposed influence of age upon the muscles of the doctor's fingers; for I have constantly observed, that a fair legible hand, when acquired in early life, is never impaired by age, and seldom even by those slight degrees of tremors which sometimes affect the hand in the decline of life. Dr. Franklin lamented, when in France, that he received many letters, containing important inquiries relative to the state of America, from persons who were disposed to migrate to our country, which he was unable to answer, because he could not decipher the names which were subscribed to them. But the writing a bad hand, which is an inconvenience only in some of the pursuits of men, is often a serious evil in the profession of medicine. A patient, in the city of London, was killed by an apothecary, who mistook a prescription of nitrum antimoniale, for vitrum antimonii; and I have heard of aqua fortis being added to a julep, instead of aqua fontana, or common water; in consequence of the prescriptions in both instances being written in abbreviated Latin by a careless hand. Considering how often we are obliged to convey our advice to patients by means of letters; and how many medicines we prescribe in words which are not in common use: considering likewise how injurious a mistake in a single word or letter, or even the neglect of our prescriptions, from an inability to read them, may be, in their consequences, to the health and life of a patient; the writing a fair and legible hand should be

considered as part, not only of the learning, but of the morality of a physician.

To acquire a fair hand, it will be necessary to practise writing copies two or three times a week, during the whole course of a young man's education. By every other species of writing, such as versions, and letters, the handwriting of a boy is impaired, instead of being improved. Let it not surprise any of you, that I consider the acquisition of a fair hand, as the result of such long and careful labour. The perfection of writing depends upon a certain order in the motions of the fingers. The difficulty of acquiring this order, may be easily conceived: by recollecting how many years of practice are necessary to produce it in the lower limbs, in the exercises of dancing and walking.

I shall dismiss this part of the previous education of a physician, with the following remark: The mind of a man pervades every thing he does, and says. It appears in the figure of his house, and even in the colour and fashion of his clothes. Much more does it appear in his handwriting,—hence Lavater has justly observed, that “he, who writes an illegible hand, is rapid—and often impetuous in his judgments.”

ARITHMETIC is to the eyes and ears, what the sense of touch is to the whole body. It serves to correct the mistakes, and to increase the accuracy, of the two artificial senses which have been mentioned. To acquire extensive knowledge and facility in the use of numbers, it will be necessary for a

young man, intended for the study of medicine, to be occasionally exercised in them, until he completes his academical education.

With these preparatory branches of knowledge, he will be qualified to study geography. The most important part of this science, to a person intended for the profession of medicine, is that which includes the history of climates, weather, soils, and the local relations of different countries to rivers, seas, and mountains. While he is receiving lessons upon the physical history of the globe, he should read such books of travels as contain accounts of the food, medicines, dresses, manners, amusements, and religions, of different nations: all of which he will afterwards find to be intimately connected with the causes and cure of diseases.

The French and German languages should be the next objects of his attention. They are deep and extensive repositories of knowledge in all sciences, and particularly in medicine. Great advantages will arise, to an American physician, from learning, not only to read, but to speak them; for the United States will probably continue, for many years, to attract citizens of every description from France and Germany. These two languages will be soonest and easiest acquired by the ear. Grammar rules, when forced by themselves upon the memory, create so much delay and disgust, that nine out of ten of the young men, who are taught them, quit their teachers long before they come to the application of those rules to the languages.

The Italian language contains many excellent books upon medicine. It may therefore be acquired with advantage; and, after the acquisition of the French, it may be learned with great ease in a month or six weeks, provided no time be lost in committing grammar rules to memory.

Let not the intended votary of medicine be discouraged at the number of modern languages which have been mentioned, as necessary or useful to a physician. The same number, and sometimes more, are deemed necessary in many countries in Europe, to qualify a young gentleman for the profession of arms.—It would be disreputable to our science, that a profession, the object of which is the destruction of human life, should produce more attainments in this part of education, than that whose only object is the preservation of life.

As soon as a young man has been thoroughly instructed in part, or in all these modern languages, he should be taught the most useful and practical branches of the mathematics. To a knowledge of these should succeed the history of the laws of matter as unfolded by natural philosophy, and the study of the faculties and operations of the human mind, called by the unpopular name of metaphysics. With this branch of knowledge, it is common to connect the study of moral philosophy. I object to its being made a part of academical education. It was originally introduced into christian colleges from pagan schools, and has constantly tended to impress a belief of the independence of morals upon religion.

A course of lectures upon the evidences, doctrines, and precepts, of christianity, will not only supply its place, by legitimating its objects, but will expand the mind of our pupil by fixing it upon the most elevated subjects of human contemplation. It will serve likewise to unfold the history of religious opinions, as held by different sects, and thereby lead him, at a future day, to the discovery of the causes and cure of many of those distressing diseases of the mind which have been produced by the gloomy errors that have been supposed to belong to the christian religion.

History, government, poetry, drawing, the principles of English grammar, and every other branch of polite literature, should be studied by a young man who is intended for the profession of medicine.

They will enlarge his sphere of social intercourse, and open to him many new and extensive sources of knowledge. The poets in a particular manner should be read by him with attention. They turn every faculty of the mind inside outwards, and bring to light many things in its operations, which elude the more languid eye of a philosopher. Of this we have a remarkable example in the Tragedy of King Lear, in which madness is described with more accuracy, than in any history of that disease that has ever been published by a physician.

A knowledge of drawing will be more than an accomplishment to a physician. It will be useful, by enabling him to preserve copies of plants and animals, and of such preternatural appearances as occur

in morbid bodies. I have sometimes wished this elegant art could be extended much further. The face and countenance of sick people upon canvass, would convey the signs of a disease in that part of the body, sooner than a whole page employed in describing them. The impression of them moreover would be as much more lasting, as the sight of any object is more durable in the memory, than a bare history of it.

I need hardly recommend to our candidate the study of English grammar. In conversation, in writing for the press, and in his written instructions to his patients, a want of correctness or perspicuity will expose him to suspicion of equal deficiencies in every branch of his profession.

Thus far the mind of a young man is chiefly passive in acquiring the foundation of a medical education. But to enable him to study to advantage, it will be necessary to exercise his active faculties by teaching him to think. For this purpose he should first be employed in extempore speaking in disputing societies, and in translating passages from foreign languages. As soon as he has acquired a sufficient stock of ideas from books and conversation, he should be obliged to exercise a talent for invention by the different species of composition. In this way he will strengthen and fertilize his own mind, more in one year, than he will by seven years' application to such studies as afford exercise only to the memory. In the former case he may be compared to an animal, which by possessing locomotive powers,

seeks and procures its own sustenance, whereas in the latter case, he resembles a vegetable in a garden which grows only in consequence of the rain and dew which descend upon it. A young man may become learned by constantly sitting at the feet of a master; but he can be made wise only by the executive operations of his own mind.

Another advantage attending these practical exercises is, they will supply the place of instruction upon that branch of learning which is known by the name of logic, and which is said to be useful in teaching the art of reasoning. How far instruction in this art is necessary, has been doubted by many writers upon education. Reasoning is natural to man: and however defective he may be in conforming to the dictates of right reason in his principles or conduct, yet he seldom errs in either, without giving a reason for it. After a young man has employed his faculties for a few months in the manner that has been mentioned, he will as readily acquire a knowledge of the proper arrangement of arguments, as he will of grammar, after he has become familiar with the meaning and use of words by keeping good company. To teach the art of reasoning in any other way, is like teaching a hungry man the names of the muscles which move the lower jaw, in order to enable him to masticate his food.

Hitherto I have said nothing of the Latin and Greek languages as a necessary part of the education of a candidate for the study of Physic.

My opinions upon the subject of the dead languages, as a branch of a liberal education, may be seen at large in an essay first published in one of the volumes of Mr. Carey's American Museum.* In that essay I have asserted, that a man may be a physician without a knowledge of Latin or Greek. I am still of the same opinion; but as the fashion of quoting those languages still continues, a physician will be less obstructed in his researches, by being able to translate those scraps of Latin or Greek, which are often met with in English books, and which are oftener introduced to support an original opinion by an author, than to convey an original idea to the reader. Knowledge enough for this purpose may be acquired in a year or two, by a youth of common capacity, provided he does not apply himself to them until he is sixteen or seventeen years of age. Many circumstances will concur to render the acquisition of these languages easy, in this stage of his life. His judgment will be matured; and he will have such a knowledge of the geography and civil histories of Greece and Rome, as will enable him more easily to comprehend many things in their languages, which must otherwise be unintelligible, or not interesting. But his facility in acquiring the dead languages will be derived chiefly from his knowledge of the general principles of grammar, as unfolded by modern languages. The acquisition

* It has since been republished by Messrs. T. & W. Bradford, in a volume of essays, entitled "Moral, Philosophical, and Literary," by the author.

of the Latin language will moreover be accelerated by the relation of the French and Latin vocables to each other. Instead, therefore, of making the study of the dead languages the *first*, they should be the *last* part of an academical education. I grant, that, in the time I have allotted for learning them, a young man will not be able to read all the Latin and Greek classics, which are commonly read at schools; but he will read enough of them, to be able to translate the Latin, and to understand all the technical terms of his profession which are derived from the Greek language.

Let not the advocates of ancient learning ascribe to me a want of taste, in recommending this superficial acquaintance with the ancient masters of poetry and eloquence. Human life is too short, and the study of medicine too extensive, to waste years in learning that which is only intended to amuse, and which can never be applied to useful and practical purposes in our profession.

In thus depreciating the study of the Latin and Greek languages, I do not mean to detract from the writings of many of the Roman and Greek authors. They contain many important truths upon all subjects. But the most valuable of them have been translated; and in proportion as the languages, in which they are written, cease to be studied, I believe they will be more generally read in an English dress. Nor do I contend for the extinction of a critical knowledge of the Latin and Greek languages, in our seminaries of learning. Let them, like tra-

velling, become a part of the luxury of education; and let those persons, who are destined to live by the labour of their bodies, or minds, rely upon the interpretations that shall be given of them by men of independence and leisure. It will be as safe to obtain our knowledge of Latin and Greek books in this way, as it is the knowledge of foreign countries exclusively from the men who have visited and described them. This remark I believe to be proper in all countries; but it is more especially so in the United States, where the means of acquiring an extensive academical education are limited, and the time allotted for it necessarily much shorter than in Europe.

I shall conclude this lecture by remarking, that it is never too late to learn that which is necessary to be known. Dr. Franklin learned to write a fair and legible hand, after he was thirty; and Sir John Pringle corrected a bad hand, after he was sixty years of age. Macklin, the player, learned several languages after he became an old man. Many of the sciences have been acquired by men after they have entered upon the duties of public and professional life.

If, by any untoward circumstances, any of you, gentlemen, have begun the study of medicine without a knowledge of the preparatory branches of learning that have been mentioned, permit me to recommend to you to cultivate them in your summer recess from your medical studies. In the present mature state of your faculties, you will find no

difficulty in acquiring them; and in so doing you will add no less to your private honour and interest, than to the credit and fame of the University of Pennsylvania.

LECTURE VIII.

ON THE CONSTRUCTION AND MANAGEMENT OF HOSPITALS.

Delivered November 10th, 1802.

GENTLEMEN,

IN compliance with the request of a worthy friend,* I have chosen, for the subject of our introductory lecture, an account of the construction and management of hospitals. It will I hope be useful; for in a country like ours, growing in population, and in those employments which increase the number and size of our cities, hospitals become necessary institutions, by affording an asylum to strangers and to such other people as labour under diseases that cannot be so well attended or cured in private houses. Hospitals are moreover a necessary appendage to armies and navies; and these must exist in our country, while ambition and avarice continue to render wars a part of the unavoidable calamities of mankind. But admitting, that none of you should ever be called to act in either of those public receptacles of sick people, the facts and prin-

* Mr. Samuel Coates one of the Managers of the Pennsylvania Hospital.

principles which will be delivered in the course of this lecture will be of extensive application in private practice, more especially among the poor, and during the prevalence of such diseases as affect a great number of people at the same time.

I cannot enter upon this subject without lamenting that private charity is so limited in its objects, as to render hospitals in their present extent, necessary in any country. Did we feel the ties of sympathy which should unite the children of men as members of one great family in the manner we ought, public hospitals would cease to be the marks of the munificence and depravity of nations. Sick people (with a few exceptions) would be attended in their own houses, and nursed by the members of their own families. The benevolent affections would thus be stimulated into constant exercise; the extremes of rank would thus be united; and poverty, (by not being exposed to the public eye) be relieved from one of its greatest evils. A state of society, in which these events shall take place, has been predicted in the old, and new testaments; and sooner or later will come to pass.

But in the present state of morals, and government, the stock of private sympathy can never be commensurate to the mass of sickness and distress which occur in our world. Hospitals of course become necessary to relieve them, particularly such parts of them as could not be relieved in private houses, even in the most improved state of mankind.

In fixing upon a situation for a hospital, a regard should be had to air and water. It should always be placed at such a distance from a city, as to possess the benefit of pure air, and of a current of winds from every quarter. It should likewise be at a distance from all sources of putrid exhalations whether from marshes or unwholesome manufactures. The quality of the water, which is to be used in a hospital, should be ascertained before its foundations are laid; for upon its purity, much will depend of the influence of the hospital, upon health and life. If a hill be chosen for the site of the hospital, perhaps such a declivity may be preferred for it, as will favour the easy conveyance of water from a well upon its summit, to all its apartments in a manner, and for purposes to be mentioned hereafter.

Of the form of the hospital little need be said. In the middle climates of America, its front should always be to the south. A single building should be preferred to a double one; as affording a more easy passage of currents of air through it. The ceilings should not be less than fifteen feet in height. It is because the high ceilings of churches permit the impure air to ascend above the possibility of being inhaled by the sick, that Sir John Pringle says they make the best military hospitals.* Garret rooms of the common height should be avoided. They once generated and spread a typhus fever in the Pennsylvania hospital. If they should be judged

* Observations upon the Diseases of the British Army.

necessary in a hospital, they should be included in what is called an attic story.

The principal part of the house should be divided into large wards of equal sizes. Connected with them, there should be a few small rooms for the reception of those patients whose cases require privacy, and for such persons as have been reduced from their rank in society, and to whom being exposed to the company and even sight of strangers, would occasion mortification and distress. There should likewise be in every hospital three or four small rooms, so contrived as to be made completely dark for the accommodation of persons with acute inflammation of the eyes.

The wards should be suited to different diseases. Those which are appropriated to the pulmonary consumption should be warmed in winter by means of stoves so regulated as to cause the heat to resemble the temperature of those climates which are most favourable to diseases of the breast. The fever wards should have earthen floors. The first account of their utility in preventing and absorbing human miasmata is to be met with in Count Saxe's reveries. It was communicated by Colonel Ward of Massachusetts to Dr. Tilton by whom they were introduced with great advantage into the military hospitals of the United States during the revolutionary war.

The windows in a hospital should be large but not numerous. By these means it will be cool in summer, and warm in winter. They should de-

scend to the floor; and the upper sash should be made to be pulled down, as well as the lower one to be lifted up. Thus fresh air may be admitted, and foul air discharged, without exposing the sick to its current in either direction. They should be provided with shutters so as to increase and lessen at pleasure the quantity of light.

The staircase should be well lighted with windows made in the same manner as those which are used in the wards. The lower floors (the fever wards excepted) should be of wood. Bricks should never be used for that purpose, upon the account of their disposition to retain filth between their interstices.

In every ward there should be a ventilator communicating with the external air to carry off the foul air in cool and cold weather. Perhaps an opening might be made by taking away a pane of glass from the highest row of the upper sash of a window, and placing a piece of wood in its room, capable of being depressed and elevated, by means of a string that should reach to the middle of the window. This contrivance is very common in stove rooms in Germany, where it has obtained the name of a "was is das" or, "what is it," from that question being generally asked by persons the first time they see it.

Great advantages would arise from separating the patients in large wards by means of wooden partitions, elevated about six or eight feet from the floor, and open above, so as to admit light and carry off impure air. The sick would thus be less disturbed

by each other, and the delicate habits of domestic life be better preserved.

The wards should have specific names painted over their doors. The names of the patriarchs and apostles have been preferred for this purpose in St. Thomas's hospital in London.

The names and the diseases of the patients, with a few exceptions, should be written upon a black board, and hung over their beds.

Besides the wards and private rooms that have been mentioned, there should be in every hospital the following distinct apartments.

1st. A large hall into which such of the patients as were able to leave their beds should eat their meals. Health, pleasure, and decency all conspire, to make this apartment necessary. It might serve likewise for a place of worship.

2d. An apothecary's shop: in which should be kept all the surgical instruments as well as the medicines of the hospital.

3d. A room formed in the manner of an amphitheatre for surgical operations. It should be as remote as possible from the sick wards.

4th. Rooms for the different kinds of baths, and for some of the modes of exercise to be mentioned hereafter; also for containing wood and coal. These rooms, and these only, should be under the ground floor of the hospital. The bath rooms should be warmed by a stove in winter, and should be so large, as to admit of patients resting or exercising in them

an hour or two after using the baths, before they expose themselves to the cold air.

5th. A room appropriated for the reception and preservation of such curious productions of nature and art, as the patients may be disposed to deposit or send to the hospital, as expressions of their gratitude from the benefits received from it. I once saw, with great pleasure, a small museum in the infirmary of Liverpool; all the articles of which were derived from this source.

6th. A dining room and bed rooms, for all the officers of the hospital.

7th. A room in which the bodies of such of the patients as die in the hospital should be kept previously to their interment. This room should be so private, as to admit of a dead body being examined, to discover the cause and seat of the disease which destroyed it, without the knowledge of the surviving patients.

8th. A large and commodious room in which the managers and physicians and surgeons of the hospital should meet to transact their respective business.

The uses of each of these apartments should be inscribed over their respective doors.

The kitchen, bakehouse and washhouse should be at some distance from the hospital. The danger from fire will thereby be prevented, and much inconvenience avoided from heat, noise, and the smell of food; which when pleasant impairs the appetite, and when otherwise, is offensive to sick people.

There should be two privies, one for the male, the other for the female patients, at a moderate distance from the hospital, and so placed as to be out of sight of each other; or, if they adjoin, they should be accessible by private avenues peculiar to each sex. This contrivance will be found not only to cherish delicacy in women, but to favour their health; for many of them, I believe, both in private houses and hospitals, prefer suffering from costiveness, rather than expose themselves, in a walk to a privy, to the sight of our sex. There should likewise be a privy exclusively for the venereal patients.

A piazza above the first and second stories, on the south side of the whole hospital, would be pleasant and useful, by lessening the heat, and inviting such of the patients to breathe the external air, as were unable to walk beyond the walls of the hospital.

Near the hospital, there should be a garden filled with fruits of different kinds for the use of the sick. There should likewise be walks shaded with forest trees around the whole house. The pleasure derived from a familiarity with such objects has a sensible influence upon health, especially in persons who have been habitually immersed in the close and dusky streets of a large city.

The furniture of each ward should consist of beds, a water closet, two or three closetools, bed-pans, a warmingpan, and a number of spitting-boxes. The beds should be made of hair: this is preferable to straw, upon two accounts. It permits

the urine, when involuntarily discharged by sick people, to pass readily through it; and when, from accident or neglect, it becomes putrid, it is less apt to produce disease than a putrid vegetable substance.

The bedsteads should be made of iron: but where this cannot be afforded, the wood, of which they are composed, should always be painted. An advantage would arise from their having castors, upon the lower end of their posts, by which means they might be more easily moved so as to accommodate the situation of the sick, to different portions of heat and light.

For patients in the dysentery, or in fevers in which the fæces are discharged involuntarily, a covering of soft leather over the bed has been strongly recommended by Dr. Donald Monroe. It is easily removed, washed and dried; and may be used a dozen or twenty times a day.

For medical purposes there should be two sets of cold and warm baths for the two different sexes. As heat differs in its effects upon the body when applied through different mediums, there should be contrivances to apply it by means of vapour, air, and sand. There should further belong to every hospital, an electrical machine, a thermometer to regulate the temperature of the baths and wards so as to accommodate them to the different states of disease, and different modes of exercise. These last, should consist of a chamber horse, the instruments for playing shuttlecock, two or three cheap and common instruments of music, a swing, tools for

cutting, sawing and working in wood and in the garden; and when practicable, a horse and chair, or a coachee. The last mode of exercise for hospital patients was first suggested by the late worthy Dr. Cooper; and so highly did he appreciate its advantages that he bequeathed a large portion of his estate for the purpose of purchasing and maintaining a carriage and two horses for the use of the patients in the Pennsylvania hospital.*

The officers of a hospital should consist of a steward, matron, a house surgeon and an apothecary, with one or two mates, cooks, and other servants and attendants upon the sick. Women, says Mr. Howard, should always be preferred for the last purpose that has been mentioned. They are better acquainted with the modes of preparing diet and drinks than men; and in humanity, whether it consist in sacrifices of sleep, or bearing with patience the peevishness of sick people, they have greatly the advantage of our sex. There are cases, however, in which men should be preferred to women as nurses. These are, where great resolution, and perseverance are necessary to enforce submission to the prescriptions of the physicians.

Such persons only should be appointed to fill all the offices that have been mentioned as are single; or if they are married, their children, if they have any, should not be permitted to reside in the hospital.

* A machine called a Gyrater has lately been introduced into the Pennsylvania Hospital. It moves upon a single pivot. It was first employed by Dr. Joseph Cox of England in chronic madness, and with great success.

For the amusement and instruction of patients in a hospital, a small library should by all means compose a part of its furniture. The amusing books should consist of travels. They are extremely exhilarating to convalescents, and to persons confined by chronic diseases. The books for conveying knowledge should be upon philosophical, moral and religious subjects.

In many hospitals in Europe there are clergymen who preach occasionally to the sick, and administer consolation to the dying. Such an establishment is liable to no objections where the sick are all of one denomination in religion; but as this can rarely be the case in the United States, it will be much better to open the doors of our hospital to ministers of different sects, and not only to permit, but to invite them to give a portion of their labours, from their respective flocks, to the sick. When this cannot be obtained, such of them as are able should be advised to attend public worship in the churches that are in the neighbourhood of the hospital.

As young people are sometimes the objects of the charity of a hospital, and are thereby detained by some diseases a long time from school, one or two suitable persons should be selected from among the adult patients, who should give them lessons every day in reading, writing, or arithmetic, according to their respective ages. These acts of attention to their youthful minds will probably produce more grateful and useful returns from them, in future life, than the cure of their diseases.

One or more newspapers should be taken for the use of every hospital. After they have been read by its officers, they should be sent into the different wards. To a sick sailor or soldier, a newspaper is a cordial, especially during the time of war, and by persons of every situation in life there will be found something in it which may help to beguile the evils of sickness and confinement.

The government of the hospital, and the care of the sick should be committed to managers and physicians chosen in such a manner as shall best promote the interests of the institution. There should be laws for preventing immoralities of every kind. Gaming should be forbidden; and strong drink should never be tasted, unless prescribed by a physician. Swearing, and indecent language should not be tolerated; and even loud talking and laughing should be restrained. The men and women should be confined to their respective wards; and no intercourse should be permitted between them, except by permission of one of the principal officers of the hospital. No patient should ever ask for charity in money, tobacco, clothing, nor food. The punishment for these offences should be different. Expulsion should be inflicted only after lenient modes of reformation have been tried to no purpose.

I have hitherto said nothing of the construction and management of a hospital as far as it relates to persons affected by madness, because I conceive that class of patients requires such specific accommodations and treatment, that a separate institution is

necessary for them. They should be confined in distinct rooms or cells, where they cannot injure or disturb each other. The head of this institution, and all who are concerned in the care of the unfortunate tenants of it, should be persons distinguished for their knowledge, resolution, and humanity. They should know the art of governing mad people by discovering all the motives which act upon them. In short, they should be their friends and companions, and should not only abstract them from their cells, but seduce them by exercise, labour, amusements, and conversation, from the subjects of their derangement. They should likewise be subject, for certain offences, to lenient punishments consisting chiefly of privations of liberty and of the pleasant parts of their food. By the skilful application of these means, the keepers of private madhouses in England, who are generally physicians or clergymen, perform more cures, under equal circumstances, than are performed in most of the lunatic hospitals in that country. I shall only remark further in this place, that hospitals in which maniacs are received in common with other patients should have small cells in their neighbourhood, in which the former should be confined during the highly excited, and noisy, state of their disease, in order to prevent their terrifying or disturbing other classes of sick people.

Having finished the construction and organization of our hospital, we proceed next to speak of its application to the relief and cure of diseases. And here I am forced to acknowledge, that hospitals

have been much less effectual for that purpose than is commonly supposed; nay, further, they have in many instances created diseases, and produced the mortality of such, as seldom prove fatal in private practice. This has in a more eminent degree been the case in military hospitals. They were the passports to the grave of nearly one half of all the soldiers who perished during the revolutionary war of the United States.

But this abortive issue, of the fabrics of public charity, is not necessarily connected with their existence, any more than malignant fevers are connected by a necessary law with the construction and existence of cities. The extraordinary mortality in hospitals may be prevented, and the practice rendered as successful, under equal circumstances, as in private houses. This has been demonstrated in the Royal Infirmary of Edinburgh, where science and humanity have constantly vied with each other in the care of the sick. In the years 1796 and 1797 there were admitted into that institution 3261 patients, but 109 of whom died; which is less than usually die from the same number of patients in the most successful practice among poor people. The means for preventing death in hospitals, and rendering them useful in the highest degree in restoring health, consist chiefly,

- I. Of pure air, and
- II. Of cleanliness.

1. To prevent the contamination of the air of a hospital, the following circumstances should be deeply fixed upon the minds of the attending physicians and surgeons.

1. The wards should never be crowded. The number of patients proper for each ward, can only be ascertained by knowing their dimensions in every direction. Sir John Pringle's rule was to have them so fixed, that a stranger should say, there was room enough to contain three times the number of patients he beheld in them.

2. Persons in the same disease should be confined to the same ward. A sore leg has often put on a disagreeable appearance, and operations in surgery have sometimes terminated fatally, in consequence of being exposed to the atmosphere created by patients in a fever; and fevers have been generated by the foul exhalations of sores and ulcers. This confinement of patients in similar diseases is more especially necessary, where there is danger of any of them acquiring by time or accident, a disposition to propagate themselves by contagion.

3. The doors and windows of all the wards should be kept open in warm weather. In cool weather the foul air should be conveyed out of the wards by means of a ventilator, and by keeping small fires in an open chimney. This renovation of the air is more necessary in the fever wards than in any others; for which purpose the beds should be removed from the walls, to which impure air is apt to adhere, so as to reproduce disease. This direction is founded

upon a fact to which an accident gave birth during the late war with Great Britain. In one of the military hospitals, an uncommon degree of mortality was observed to take place among the patients who had the dysentery. A black soldier remarked to Dr. Beardsley the physician of this hospital, that none died, but those whose bunks were contiguous to the walls of the hospital. The doctor was struck with the truth of the remark, and instantly removed all the sick into the middle of the ward, which put an immediate stop to the mortality of the disease. Of the deleterious effects of foul air generated by patients in a fever, I shall mention two memorable instances which occurred in the neighbourhood of this city. In the spring of the year 1777 a typhus fever broke out in a military hospital under my care in the bettering-house. In the month of May the weather became so warm that the windows of the hospital were kept constantly open, by which means the seeds of the fever were nearly dissipated. About the 20th of the month, the weather became suddenly so cold, as to make it necessary to close all the windows of the hospital; in consequence of which the fever revived, and with so much malignity as to carry off not only a number of soldiers, and three surgeons, but to affect nearly every person who attended the hospital. The second instance of the deadly effects of confined air occurred in the city hospital of Philadelphia in the year 1797. A cold shower of rain, on the 23d of September made it necessary for the nurse to shut all the windows of one of

the wards of the hospital during a single night. The next morning seven of the patients confined in that ward were found dead, five of whom were considered in no danger the night before. This fact was communicated to me by Mr. John Connelly of this city, who was one among many witnesses of it. To change the air of the wards appropriated to fevers, an important advantage would arise, were it practicable, to have the fire in winter in a hole in the middle of the ward instead of a chimney, and to suffer the smoke to escape through an opening made in the roof in a perpendicular line with this hole. What little smoke was unable to rise to the hole, would help to prevent the generation of contagious miasmata, as has often been seen in fever hospitals. This mode of warming and ventilating hospitals was invented by Dr. Tilton in the American army. I have seen it with great pleasure, and am happy in thus publicly bearing a testimony in favour of its good effects.

4. A fourth mode of purifying the air of a hospital is by means of water. Were it possible for it to flow in a perpetual stream through every apartment of a hospital, there is reason to believe fevers would generally be prevented, or deprived of their malignity. But substitutes for this agreeable mode of conveying water into a hospital may be contrived by frequently wetting, and washing, not only the floors, but the walls and ceilings of the wards. If the theory of Dr. Mitchell be correct, the water could be rendered more salutary by mixing a quan-

tity of ley, or dissolving some salt of tartar in it before it is applied to the above purpose.

5. In addition to the modes of purifying the air of a hospital which have been mentioned, the use of the muriatic acid in the manner recommended by Dr. Johnson, and of the nitrous acid as recommended by Dr. Carmichael Smyth should not be omitted. The facts in favour of their utility, are too numerous, and too well attested to be doubted.

II. The means for promoting cleanliness relate to the bodies, and clothing of the sick, and to the wards and environs of the hospital.

1. Every person in a fever, who is admitted into a hospital in warm weather, should be stripped of the clothes he has worn, and his whole body should be washed with soap and water. His linen should be changed daily; and where a fever tends to generate morbid miasmata, his sheets should be changed likewise. The practice of washing the hands and face every day, in all diseases, should be universal. In those cases where danger is to be apprehended of the generation of a hospital fever from the wards being accidentally crowded, the whole body should often be washed in a bath accommodated to the strength of the patients, and the nature of their diseases.

Foul linen should never be put into a closet nor basket, until it has been exposed to the air. The shorter the time it is kept before it is washed, the better. Were it practicable, the safety of a hospital from this source of disease would be insured, by

conveying linen, as soon as it is taken off the body, to the washing tub. This should be done in a more especial manner in warm weather.

Shaving should be enjoined upon the men three or four times a week; and the hair of patients of both sexes should be combed daily, not only to prevent the generation of lice, but the accumulation of that kind of sordes upon the scalp, which by long stagnation sometimes becomes the remote cause of the hospital fever.

The beds of the sick should frequently be exposed to the air; and uncommon pains should be taken to prevent the bedsteads becoming a receptacle for bugs.

The intestinal and urinary excretions should be removed as soon as they are discharged; and the vessels which contained them, should be thoroughly cleansed.

If our hospital should be so situated, as to receive water from a spring into its upper story, or if a reservoir should be made for rain water in its roof, excretions may be instantly washed away into a common sewer by conduit pipes conveyed to the water closets for that purpose. Where patients are unable to walk to the water closets, the smell of their excretions by stool should be prevented by being received in a chamber vessel half filled with cold water. This delicate mode of destroying the fetor of the excretions from the bowels is recommended by Dr. Clark in his treatise upon the means of preventing the diseases of long East India voyages.

Spitting boxes should be constantly used for such patients as disease, or a salivation, renders them necessary. Mr. Howard has excluded tobacco from hospitals in his directions for cleanliness; but where its use has been habitual for many years, a total abstinence from it is not only distressing, but cannot fail of opposing the efficacy of medicines. In such cases, patients should be indulged in tobacco; but it should be under such circumstances as not to offend by its smoke, if used in segars, any person in the hospital.

The wards should be whitewashed three or four times a year. The efficacy of lime when thus applied, in preventing and destroying contagion, has been established by many facts recorded by Mr. Howard. Where a hospital is built of wood, painting the wards has been found to produce very salutary effects. I have before spoken of the advantages of the frequent use of water for the purpose of washing the floors of the wards.

The environs of a hospital should be watched with a careful eye. No matters capable of putrefaction should be permitted to remain in them. However innocent they may sometimes be, they contain in them the seeds of disease, and require nothing but the cooperation of heat and moisture, to bring them into action.

In every hospital, there should be two or three wards for convalescents from fevers. Recovery is always hastened by bringing patients from the rooms in which every object has been associated with the

fear of death. But there is another reason for adopting this practice. The exhalations from persons who have been confined by the hospital fever often adhere to walls and floors, and thus reproduce the disease, or retard convalescence. Mr. Howard tells us that he experienced a headach upon entering a fever ward in the hospital at Salonica some time after it had been evacuated by the patients who had occupied it.

In reviewing the means of preventing the contingent evils, and extending the benefits of hospitals, we are led to do homage chiefly to PURE AIR and WATER. Is it because they are so cheap, and universal, that their usefulness is so little appreciated? or, are they neglected as the means of health by the popular and imposing doctrine of diseases originating and spreading only by certain contagious matters which are incapable of destruction; and which, like the Barbary powers, are only to be opposed by oppressive national impositions, for the different purpose of supporting expensive quarantine laws and lazarettos? As well might we attempt to draw down rain from the clouds by a procession of images, as aim to avert pestilence by any other means, than those of air and water. The sun, it is said, became the object of worship by the immediate descendants of Noah, in consequence of its exhaling the waters of the deluge, and restoring to their sight, the surface of the earth. Did mankind comprehend the advantages to health and life which pure air and water are capable of affording, they

would be restrained by nothing but the true religion from similar acts of idolatry to each of them, in every country. These inestimable sources of health and life shall not always be treated with neglect and contempt! After error and folly have exhausted their nugatory and fruitless efforts to obviate pestilential diseases, they shall be resorted to by the citizens of the United States. Already has a stately monument been erected in honour of the salubrity of the waters of Schuylkill in the city of Philadelphia. May they soon and long flow through all our streets, and into all our houses, and while they wash away the filth of our city, may they wash away at the same time the prejudices which derive domestic fevers from foreign countries!

I return from this digression to mention a few things which do not properly belong to any of the preceding heads of our lecture.

1st. The diet of the sick should be accommodated to the states of their individual diseases; but as a considerable proportion of the patients in all hospitals are affected by diseases which admit of a uniformity of diet as to quality, I would advise that it should be frequently varied, and differently prepared, so as to render the pleasures of the table an auxiliary remedy to medicines. Sundays, and a few of those days which are annually devoted to the commemoration of great religious and political events, should always be distinguished by a more savoury meal than on common days. It will serve to keep up useful habits, and to show the sick that they have not

forfeited by their poverty, and sequestration from the world, an interest in the common and public blessings of mankind.

2d. To the objects of the charity of a hospital there should be but few exceptions. It is usual in some places to exclude patients from its benefits in bilious or typhus fevers, under an apprehension of their spreading by contagion; but if the precautions which have been recommended are adopted, the generation of contagion will be prevented; and if it be formed, it will soon be destroyed. Children have been excluded likewise from hospitals on account of their noise, and the extraordinary trouble and expenses that are required to nurse them. But these might in part be obviated by admitting them after a certain age only, and confining them to one apartment in the hospital. Considering how great the proportion of sickness and mortality is among children and how much more they suffer from poverty and confined houses than grown people, the usefulness of a hospital would be greatly promoted by including them in the number of the objects of its benevolence.

3d. The fewer difficulties that are thrown in the way of patients being admitted into a hospital, the better. The practice of demanding security for their interment has been found to exclude persons with diseases that might have been easily cured, and is calculated to damp the hopes of relief in those who are able to comply with it.

4th. All forms should be dispensed with in ad-

mitting such cases of surgery as are the effects of accidents.

5th. The physicians and surgeons of a hospital should visit their patients at a regular hour. The frequency of their visits should be regulated by the danger of their patients. A correct account should be kept of all their prescriptions, and, when practicable, of their effects upon diseases.

6th. The pupils who attend the practice of hospitals should conform to such of its regulations as are intended to promote cleanliness, decency, and order. Their visits to the sick should be at those times that will least intrude upon their eating, sleeping, and taking medicines.

7th. The relations and friends of the sick should not be permitted to visit them, except with the consent of one of the principal officers of the hospital. In exhibiting a view of its different departments to strangers, maniacs, if they should compose part of its patients, should never be seen.

8th. In determining when to discharge patients from a hospital, some judgment is necessary to distinguish between those who counterfeit diseases in order to lounge away weeks and months in idleness, and those who are willing to depart before they are able to return to their former occupations. It should always be remembered, that a disease may be completely cured, and yet the subject of it remain in such a state of debility, as to render him unfit for labour. For this reason, it will sometimes be proper to detain patients for some days, or even weeks,

after they appear to be cured, and to continue to administer to them such remedies as are calculated to invigorate the system, and thereby to obviate a predisposition to relapse, or to acquire another disease. This practice is proper at all times, but chiefly so, in the autumnal and winter months.

I have thus, gentlemen, imparted to you all the knowledge I possess of the construction and management of hospitals. It remains only that I recommend these institutions to your patronage. I repeat again, in the present imperfect state of morals and society, they are highly important objects of benevolence and public spirit. From contributions in property and labour to their establishment and welfare, some of the most distinguished characters in the world have derived their claims to the esteem and gratitude of mankind. Among these, the late Dr. Thomas Bond, of this city, deserves to be mentioned with peculiar respect. To him, humanity and patriotism are indebted for having projected the hospital which has for many years been the pride and ornament of Pennsylvania. To his friend Dr. Franklin, he surrendered the honour of laying the corner stone of this noble building. A crowd of citizens, and processions of all the schools in the city, accompanied him to the spot appointed for that purpose. The spectacle was deeply interesting. The feelings of our illustrious American philosopher, and the pious inscription upon the stone,* which was composed by him, accorded with

* See the following page for the inscription.

the occasion. On his way to place the solemn offering upon the altar of benevolence, a gentleman who walked by his side remarked to him that one inconvenience would arise from the institution they were about to establish, and that was, it would invite the sick from every province in America. "Then (said the doctor) it will be more extensively useful than was at first intended." This anticipation has been amply fulfilled; for I believe there is not a state in the union nor a trading nation in Europe, in which there are not some persons who have been benefited by it. Since the year of its foundation, the number of persons, who have been cured in it of different diseases, amounts to six thousand four hundred and seventy-six. Allowing nineteen out of twenty of them to be Americans, and all of them to have lived upon an average ten years after they were discharged,

* In the Year of Christ

1755

George II. then happily reigning

(for he sought the happiness of his people)

Philadelphia flourishing,

(for its inhabitants were

public spirited),

this building,

by the bounty of government,

and of many private persons,

was piously founded,

for the relief of the sick and miserable:

May the God of Mercies,

bless the undertaking!

how great must have been the profits of their labour to our country! Admitting that most of them had families, and the same number of children which married people usually have in the above period, how greatly must they have added to our population! But in recounting the public advantages of our hospital, let us not pass over in silence, the individual comfort and happiness it has created and prolonged. There, oil and wine have been poured into many bleeding hearts. There deposed human reason has often been brought back again by the power of medicine to resume her empire over all the faculties of the mind. And there, the ties of consanguinity, which were nearly dissolved by death, have been renewed and cemented; and husbands and wives, and parents and children, have been returned in health and joy to bless each other. Receive illustrious founders of this excellent institution, in this humble detail of its various and multiplied blessings, the rewards of your beneficence! But great as those blessings appear, they are small, compared with the benefits which have been ascribed to hospitals in other countries. Dr. Tillotson has pronounced them to be the bulwarks of Great Britain, and ascribes, to their influence, her frequent and signal preservations from the power of her enemies. Higher motives remain yet to be mentioned to recommend these public asylums of sickness and distress to our affections and care. The Saviour of the world owns the miserable outcasts of society who occupy the wards of hospi-

tals as his relations, and has declared he will reward acts of kindness done to them, as if they had been done to himself. His memorable words shall conclude our lecture. "I was sick and ye visited me;" and again, "Inasmuch as ye have done it unto these my brethren, ye have done it unto me."

LECTURE IX.

ON THE PAINS AND PLEASURES OF A MEDICAL LIFE.

Delivered November 7th, 1803.

GENTLEMEN,

YOU are convened this day for the purpose of hearing an introductory lecture to a course of lectures upon the institutes and practice of medicine. Previously to my entering upon those subjects, I shall deliver a few remarks upon the pains and pleasures of a medical life. The detail, of the former, will serve to show you the evils to which you will be exposed, in a greater or less degree, in your present pursuits; and thereby prepare you to meet them with dignity and resignation. The history, of the latter, will serve to animate you in your studies, and to lessen, if not destroy, the fears which may be excited by the previous detail of the pains which accompany the life of a physician.

I. The pains of a medical life naturally divide themselves into VEXATION, DISTRESS, and SOLICITUDE. I shall make a few remarks upon each of them, in the order in which they have been mentioned.

1. The sources of VEXATION to a physician arise from the ignorance of mankind of the nature of medicine. This ignorance discovers itself in different degrees of credulity and superstition. It leads to a preference of quacks; also of artful, vulgar, and sometimes of brutal manners, to such as are candid, simple, and polite; and of pretensions to skill, though accompanied with levity, profanity, and even drunkenness, to a conduct uniformly grave, decent, and sober, in regularly bred physicians. There are few cities, or even villages, in civilized countries, that do not furnish proofs of the truth of this assertion. We had, some years ago, a physician in this city, of sprightly talents, who was an habitual drunkard. Soon after his death, I was called to attend a gentleman, who had been one of his constant patients. He submitted with reluctance to my prescriptions, because they were contrary to the modes of practice of his former physician, to whom he was so much attached, that he declared he would rather be prescribed for by him when drunk, than by any sober physician in the city. But the credulity and superstition of mankind descend much lower in medicine. They not only confide their health and lives to quacks; but they often place the most implicit reliance upon what are called spells and charms to cure their diseases. A piece of stolen butcher's meat, rubbed upon warts, and afterwards buried in the earth, has long been a popular remedy for those excrescences upon the hands. The prescription of a woman who has not changed her name in mar-

riage, is considered as a cure for the hooping cough; and a seventh son is supposed to possess, by a kind of birthright, a supernatural power over all diseases. It is impossible for a man, who has qualified himself to practise medicine, by a laborious and expensive education, and who conforms to all the decent and moral duties of his profession, to hear of such instances of caprice and weakness, without complaining of the unequal distribution of wealth and fame, by those means, in the profession of medicine.

2. The extensive and profitable business, which sometimes falls to the share of those physicians who have been remarkably unsuccessful in their practice, is another source of the vexations of a medical life. A single cure of a disease, rendered dangerous or obstinate, perhaps, by improper treatment in its first stage, has often created a reputation in medicine, which has outweighed the loss of many hundred patients in curable diseases.

3. A physician is exposed to vexation, from the false judgment which the bulk of mankind often entertain of the nature of certain medicines which he employs in his practice. I well recollect the time when the prejudices against opium and bark were so great, that it was often necessary to disguise, in order to exhibit, them; and few persons are ignorant of the unfounded and illiberal clamours, which exist, at this day, in every part of the world, against the use of mercury and the lancet.

4. Equally vexatious is the false judgment which the public form of the characters of physicians. A disposition to employ new medicines is often ascribed to a dangerous spirit of innovation. That bold humanity, which dictates the use of powerful but painful remedies, in violent diseases, is branded with the epithet of cruelty; while an accommodation of remedies, to the changes induced in diseases by a difference in the season, and of the habits of sick people, is attributed to caprice, and a want of stability in the principles of medicine.

5. Another source of vexation to a physician, arises from an intolerant spirit in mankind. This spirit sometimes extends so far, as to impose restraints upon the judgments, and even consciences, of physicians, upon many subjects. Several respectable physicians were driven from the United States, during our revolutionary war, for refusing to accord with all the measures of our new governments; and many more, in Britain and Ireland, lost their business, or were compelled to emigrate to foreign countries, for barely professing an attachment to what they believed to be the equal rights of man. But this intolerant spirit discovers itself chiefly in the clamour and persecution which always follow a physician's declaration of the existence of a malignant or contagious disease, in the city in which he resides. Many physicians have been driven into voluntary banishment by this clamour; and we read of one, who, in consequence of such a declaration, was

compelled to save his life, by a rapid flight to a church.

6. Public ingratitude is another source of vexation to a physician. In the month of December, 1793, the citizens of Philadelphia assembled at the statehouse, and voted their thanks to the committee who had superintended the city, during the prevalence of the fever of that year. A motion was afterwards made to thank the physicians of the city for their services. This motion was not seconded. The services and sacrifices of those physicians may easily be estimated, when I add, that their patients were chiefly poor people; and that out of thirty five physicians who remained in the city, eight died; and of the survivors, but three escaped an attack of the fever.

But the vexations of a physician do not end with the ignorance, false judgments, intolerance, clamours, and ingratitude, of mankind in general. They are derived from the conduct of his patients. The causes of vexation to a physician, from this source, consist in numerous and unnecessary calls from his bed, from his meals, and from company; in the delays to which he is sometimes obliged to submit, before he can be introduced into his patient's bedroom, while other engagements are pressing upon him; in the disobedience of patients to his prescriptions; in their petulant complaints of his supposed neglect in attending them, or of the operation of his medicines; in his constant self denial of the pleasures of society, and of occasional excursions from home; in listening to tedious and unconnected histories of

diseases; in the ingratitude with which he is treated by his patients, manifested in ascribing their cures to other causes than to their medicines; in their delays or refusal to remunerate his services; or in dismissing him from his attendance upon their families, in a fit of ill humor, after having owed to him the frequent preservation of their lives. Even the excuse of ill humor cannot always be made for this capricious and ungrateful conduct. It has sometimes been the practice of such patients, as have been attended, perhaps, gratuitously, in humble life, to desert their family physician, after their elevation to rank and consequence in society, lest they should be reminded, by an intercourse with him, of their former obscure and dependent situation.

Under this head I shall only add, if a physician be conspicuous in his profession, he is exposed to vexation from applications for advice, at his hours of rest or eating, which is generally received without a pecuniary compensation, and sometimes without thanks. He is moreover, often subjected to the labour of reading long, or deciphering ill written, letters for advice, with which he seldom receives a fee, and for which he is sometimes obliged to pay the postage.

3. An eighth source of vexation to a physician is derived from the conduct of the attendants and visitors of his patients. The former often give them improper food and drinks, and neglect to administer his medicines, at the time and in the manner in which they have been prescribed. The latter some-

times destroy the confidence of his patients in his skill, and defeat the best concerted plans of cure, by advising hurtful or heterogeneous consultations, or remedies; while both unite in disturbing them, by their loud or long conversations; or depress them by the histories of the fatal issue of diseases similar to those with which they are confined.

9. Our subject would naturally lead us to speak, in the ninth and last place, of the vexations of a medical life, from the conduct of physicians to each other. Many of those vexations are upon record, in the writings of Botallus, Sydenham, Morton, Linnæus, and Haller. I shall select from many of the complaints that have been uttered by each of those physicians, against the ingratitude, the duplicity, the treachery, and the rancor of their brethren, the following declaration by Linnæus, composed a short time before his death. "I have ranged through the
" thick and shady forests of nature. I have, in my
" rambles, found sharp and perplexing thorns. I
" have, as much as possible, avoided them. But I
" have learned, at the same time, that attention and
" foresight do not always conciliate perfect and en-
" tire safety. I have, therefore, quietly borne the
" derision of grinning satyrs, and the jumps of
" monkeys on my back." It is remarkable, says his biographer, who mentions the names of these satyrs and monkeys, that no one of his pupils was ever mentioned among his enemies. Happy philosopher of Upsal, in thus escaping the pain which the ingratitude of pupils inflicts upon the minds of their pre-

ceptors! The degree of this pain, when excited by a different cause, was correctly measured by Shakspeare, when he ascribed the "bursting of the mighty heart" of Cesar to it.

I proceed in the order laid down, to take notice of the sources of DISTRESS to a physician. These arise, in the first place, from our intercourse with our fellow citizens being confined chiefly to those times in which they are unhappy from sickness and pain. Secondly, from our being frequently obliged to witness the inefficacy of our attempts to arrest the gradual progress of death in certain diseases. The hectic pulse, and purulent cough in consumption; the return of dropsy, after the operation of tapping; the widespreading external, or the deepseated internal, cancer; the black discharges from the stomach in a bilious fever.—How severe the pang which each of these conveys to the heart of a physician! But how shall I describe his feelings, when compelled to share in the grief occasioned by his inability to save the life of a favourite or only child? "Oh save my daughter, or kill me!" said a distracted mother, upon her knees, to a physician in this city. Still more difficult would it be to paint his distress, when called to attend the deathbed of a valuable head of a family. The clay-cold wrist, with the hand still warm; the half closed or glassy eye; the heaving breast; the faltering speech; the rapid and thread-like or absent pulse; a bed surrounded with a group of weeping children; and, above all, an affectionate wife, gazing, with silent

anguish, for the last time, upon the partner of her life; or frantic with grief, rending the air with her shrieks in an adjoining room!—how affecting the scene to a physician! It would be some alleviation to the distress occasioned by it, if it occurred only in the persons and families of strangers; but the subjects of this accumulated and poignant woe are often his early and much loved friends. To receive from them the last parting look, the affectionate grasp of the hand, the half formed expressions of gratitude for unsuccessful efforts to prolong their lives:—here language is unequal to our subject. But in losing patients for whom we do not feel an affection, we are often distressed in observing the indifference to futurity with which they are permitted by their friends to leave the world. Their only solicitude appears to consist in keeping them ignorant of their impending fate; and their only consolation in knowing, or believing, that they died without pain.

Besides the distress which physicians feel from the causes that have been mentioned, they are exposed to share largely in that which is introduced into a city, by the prevalence of a general and mortal epidemic. Citizens, agitated and distracted by the contradictory reports and opinions of physicians; streets crowded and obstructed by carriages conveying whole families, with piles of household furniture, into the country; parents deserted by their children; children deserted by their parents; the

sick neglected, or attended only by ignorant and mercenary nurses; our ears assailed, in walking the streets, by the groans and shrieks of the dying; and our eyes met, in entering the doors of our patients, by a wife or a parent in tears from an apprehension of the fatal issue of the prevailing disease in a husband or a child; gloom and dejection sitting upon every countenance; an awful stillness pervading every street, and finally nothing seen in them but heres conveying the dead to their hasty graves.—Such are the scenes which many physicians have witnessed in this country; but, affecting as they are, they exhibit but a faint idea of distress, compared with that which the members of our profession have often experienced during the prevalence of pestilential fevers in many of the cities of Europe.

Let it not be thought that this part of our subject descends unnecessarily, while I barely glance at the distress which is sometimes obtruded upon a physician, from other causes than sickness, in his visits to his patients. A husband, a wife, a parent, a child, or a servant, in families, which exhibit to the world the fairest appearances of domestic happiness, is often accidentally known by him, to pine, in secret, under the pressure of afflictions, which cannot be told, and of course do not admit of sympathy or relief.

In this account of medical distress, it will be proper to take notice of the bodily pain to which a phy-

sician is exposed, from heat, cold, fatigue, and watchfulness, in visiting and attending his patients. These are often endured in a feeble state of his body, and are sometimes of so intense or durable a nature, as to bring on diseases, which, when they do not terminate in death, frequently disable him for months, and even years, from attending to his business, and thus preclude him from the means of subsistence, which he has been accustomed to derive exclusively from it.

It remains only to mention SOLICITUDE, as a source of the pains of a medical life. It includes all those painful feelings which are excited by doubts of the nature of our patients' diseases; by the occurrence of new or alarming symptoms; by unexpected and disagreeable effects from our medicines; by the anxious inquiries of the relations and friends of the sick, with respect to the issue of their diseases; by our own apprehensions of censure, in case of their fatal termination; and lastly, by our constant fears, of doing too little or too much for their recovery.

In reviewing what has been said, and considering, at the same time, the perpetual employment of a physician, it would seem as if no part of his life was exempted from vexation, distress, and solicitude. Were not the persons of physicians so familiar to us, we should expect to see the pains, which have been described, manifesting themselves by habitual gloom of countenance, and moroseness of conduct.

This would probably be the case, were not those pains opposed, and frequently overbalanced, by certain pleasures; the history of which shall constitute the second part of our lecture.

II. The pleasures of a medical life are of an intellectual and moral nature. All the branches of medicine are calculated to afford pleasure to the understanding.

1. Anatomy and physiology unfold a microcosm of wonders to the inquisitive mind. The structure and offices of the heart, the liver, the spleen, the omentum, the bloodvessels, the brain, the nerves, the muscles, the lymphatics, the stomach, and the skin, contain inexhaustible matters of pleasant inquiry and reflection. The separate and combined actions of the senses, the causes of animal life, and, above all, the faculties and operations of the human mind are capable of affording pleasure, when properly contemplated, through the longest life. A single example will serve to illustrate the extent of the pleasure derived from the study of anatomy. I attended a course of Dr. Monro's lectures upon this branch of our science with a gentleman who was so much delighted with the Doctor's exhibition of the manner in which the flexion and extension of the fingers were performed by means of the perforating, and perforated tendons, that he assured me he had passed the whole of the succeeding night in his bed in viewing by the light of the moon the alternate motions of those tendons in his own hands.

2. In the study of natural history, we unlock the cabinet of nature, and survey all her beautiful productions in the vegetable, animal, and mineral, kingdoms. The pleasure which this science is capable of affording may easily be conceived by the sacrifices which have been made by its votaries to increase their knowledge of it. I might here mention the names of Tournefort, Hasselquist, Solander, Sparman, Kalm, and many others who have traversed remote and inhospitable countries in pursuit of natural knowledge. But I shall direct your eyes chiefly to the illustrious Linnæus turning his back upon all the comforts of cultivated life, and undertaking a journey on foot to Lapland. Behold him! penetrating through a country seldom before explored; living upon coarse and scanty food; teased and tormented by clouds of insects that often rendered his breathing difficult, and his vision imperfect; see him climbing steep and almost perpendicular mountains, descending rocky and dangerous precipices, crossing rapid streams of water, and often at the risk of his life; wading through deep morasses; alternately chilled with cold and oppressed with heat; reclining at night by the side of a rock, or dosing a few hours in a hut amidst a rude and uncultivated people;—and all this in quest of unknown animals, minerals, and plants. Animated by the love of nature and fame, and elevated by the prospect of enriching the science of medicine, and the agriculture and manufactures of his country, he is insensible of all the physical evils of life; nor did the pleasure, which he derived

from the study of natural history, end with his return from this remote and perilous excursion. He continued to enjoy it during a long life; and after he had lost his memory and his speech by a stroke of the palsy, he discovered strong marks of delight in viewing his garden, and the different and curious articles of his museum.

3. The study of chemistry affords a perpetual source of pleasure, by unfolding the effects of heat and mixture. Water, air, the surface and bowels of the earth, and even animal and vegetable substances, are compelled by those agents to exhibit their component parts to our view. The late Dr. Black never performed a successful experiment in the presence of his class, without accompanying it with a smile. Dr. Priestley always appeared to be more enamoured with chemistry, than with any other of the sciences which employed his active and capacious mind. And it is well known the illustrious Lavoisier wished his execution to be suspended only till he could fill up the measure of his happiness by completing a course of experiments to ascertain a principle in chemistry.

4. The study of the laws of the animal economy in health, of their derangements in diseases, and of the cure of those diseases, are all sources of great pleasure to a physician. Connected with these studies, it will be proper to name the pleasure which the student of medicine derives from visiting distant countries; from conversing with the enlightened physicians of other nations; from exploring the records

of ancient and universal learning, and examining the various productions of nature and art in foreign libraries and museums; and from observing the influence of foreign climates and of national diet and manners upon diseases. The pleasure derived from this source is so great, that it is enjoyed in retrospect over and over in every subsequent period of our lives.

5. A fifth source of the pleasures of a medical life consists in the discovery of new truths, whether they relate to anatomy, physiology, natural history, chemistry, or the practice of physic. How delightful must have been the feelings of Dr. Harvey when he discovered the circulation of the blood! What may we not suppose were the transports of Linnæus, when his great and comprehensive genius conceived and established a system of botany founded upon the sexual relations and attractions of the plants! Black, Priestley, and Lavoisier, must have been elevated to rapture when they discovered the component parts of air and water, and their extensive application to practical purposes in common life. But still higher has been the tide of pleasure in those physicians who have discovered, by reasoning, or by accident, new remedies for diseases. The introduction of opium, mercury, and bark, into medicine was the result of the combined and successful labours of so many physicians, that we are at a loss to know whom we shall felicitate as the happy instruments of conveying to mankind the blessings of those invaluable medicines. Not so, with the remedy of

bloodletting. Botallus in France, and Sydenham in England, first enjoyed in their respective countries, the heartfelt pleasure of beholding, in a thousand instances, the smothered and feeble spark of life recalled by the use of the lancet in malignant fevers. But to modern physicians belongs the joy which arises from practical discoveries in medicine in a higher degree than ever was before experienced in any of the former ages of the world. I allude here to the delightful sensations of Dr. Jenner when he laid the foundation for the extinction of the smallpox by vaccination, and of those British and French physicians, who, during the late war in Egypt, established the noncontagiousness of the plague. By means of the emancipation of this long imprisoned truth, one more of the barriers, which have restrained the intercourse of nations, will be removed, and an immense source of the misery and mortality of mankind be for ever destroyed. The year of this discovery will be immortal in the history of the human race. It will convey to oblivion whole libraries of error upon the subject of pestilential diseases, and probably revive the healthiness, fertility, and population, of ancient Palestine in every part of our globe.

It has been remarked that novelty, variety, and duration, are necessary to constitute mental pleasure. From a review of what has been said, it is obvious that they all combine in forming the pleasures which are derived from studies and discoveries in medicine. To the youthful mind every thing is new; to

physicians advanced in life, variety prevents apathy in study and practice; and to both, the objects of knowledge, and the subjects of inquiry, are inexhaustible, and of course equal in duration to the age of man.

III. Let us next attend to the pleasures of a medical life which are of a moral nature.

1. The gratification of the humane and benevolent affections by relieving pain and sickness, and prolonging life, are great sources of this pleasure to a physician. It is enhanced by the violence and danger of the diseases which he has cured, and the importance of the relation which the subjects of them bear to the public or to their friends. To snatch the chief magistrate of a country, on whose life a whole nation depends for the continuance of its safety and repose, from an untimely grave; to arrest a malignant fever in its progress to death, in the father, and a consumption in the mother of a numerous family of children; to restore the deranged faculties of the mind in an only daughter; to resuscitate, from apparent death by drowning, an only son; to behold the tears of joy in the relations of the persons who have been the subjects of these cures, and to receive from them their almost idolatrous expressions of gratitude and attachment! how exquisite the pleasure to a physician! But the humane and benevolent affections are sometimes gratified in a much higher degree by a physician becoming the instrument in the hands of Providence of discovering a remedy for a mortal epidemic, and thereby of

saving a whole city or country from destruction. Heinsius enjoyed this sublime pleasure in Italy, and Masdenal in Spain. In both these instances, the destroying angel suddenly threw away his commission, and retired, from an unequal contest with those highly favoured members of our profession.

Under this head we may take notice of the pleasure which a physician derives from relieving, by his charities and sympathy, the poverty and distress which his intercourse with his patients often brings to his observation or knowledge. I need not mention names to prove how generally this pleasure is attached to our profession. There are few physicians who have not felt more or less of it, in some part of their lives.

2d. It belongs to physicians to enjoy a large share of the pleasures of society. For this they are generally well qualified by their educations, and the knowledge they acquire of men and manners by their close intercourse with their fellow men in sickness and distress. The whole world bears testimony to the truth of this remark; and hence we find physicians in all countries have been the most welcome guests at the tables of the great, and frequently waited for with the most impatience at clubs and in convivial companies.

3d. A physician partakes likewise in an eminent degree of the pleasures of friendship. By his kind offices in sickness, he often obtains such a portion of the affections of his patients, as to receive from them sympathy in distress and support in adversity.

Common pursuits and common dangers sometimes unite physicians as friends. Sydenham and Brady, Friend and Mead, and Fothergill and Russel, were as much distinguished for their ardent and affectionate attachment to each other, as they were for their skill and eminence in medicine.

4th. The gratitude of patients and communities manifested in various ways is another of the pleasures of a medical life. The hand of a physician has often been seized and kissed by a patient when emerging from the lowest stage of a disease, before he was able to speak. Dr. Huck used to exhibit a splendid service of plate upon his table, every article of which was presented to him by his patients. I well recollect to have read on a large and costly piece of it the following delicate inscription. "Non donum, sed debitum." Not a gift, but a debt.

Honours bordering upon divine were heaped upon Hippocrates by the city of Athens.

The town of Leyden was illuminated, and all the bells of the churches were rung upon the recovery of Dr. Boerhaave from a dangerous fit of sickness; and a statue of Heinsius was erected at Verona in honour of his having discovered a remedy for a pestilential fever in that city. Many similar instances of private and public gratitude to physicians are to be met with in the records of medicine.

5th. Affluence, and the elevation of families to power and influence in society, are sometimes the agreeable rewards of a medical life. An immense estate followed the eminent and useful labours of

Dr. Boerhaave in medicine; and titles and pensions have been conferred upon physicians, distinguished for their talents and knowledge, by most of the governments in Europe.

I have thus, gentlemen, delivered an epitome of the pains and pleasures which are connected with the profession of medicine. It remains now to determine which of them predominate in the scale of a physician's life.

If a physician should rely exclusively upon the stock of knowledge he acquired at the university in which he was educated, and neglect to study after he enters into practice—if he should pass a long life without adding a single discovery or improvement to any branch of our science—if he has flattered the rich, oppressed the middle ranks of life, and neglected the poor—if he has neither sympathized with the sorrows, nor partaken of the joys of his patients—if in his intercourse with them, and with his brother physicians, he has formed no social connexions, nor friendships—and, if in a word he has practised medicine as a trade, instead of profession—then his pains greatly predominate over his pleasures. Such a man it is true often derives pleasure from his wealth, but the wealth thus acquired is the product of the labour of the limbs, and not of the mind: and the pleasure derived from it is that of a mechanic, and not of a physician.

If, on the other hand, a physician consider himself a student of medicine as long as he lives—if he make it part of his business to read all the new pub-

lications upon the practical parts of his science—if he feel himself under an obligation to leave his profession in a better state than he found it, by adding to it some discovery or improvement—if he prefer the life of a patient, at all times, to his own interest and reputation—if he has made the joys and sorrows of his patients his own—if he can look around him and see thousands of his fellow citizens, whose lives have been prolonged by his skill and humanity—if he has so relieved the wants and distresses of the poor, from sickness and pain, as to derive a daily revenue from their blessings and prayers—if he has occasionally restored himself from fatigue and depression of body and mind, by spending an evening or an hour in pleasant society—if he has earned a friend by offices of disinterested kindness and benevolence—and, if he has acquired the esteem and affections of his patients, by his integrity and humanity, as well as their confidence by his skill—then his pleasures greatly predominate over all the pains of his medical life.

It has been said that physicians, who have fulfilled all the duties of their profession in the manner that has been mentioned, have seldom acquired great wealth. This assertion is not true. Some of the richest physicians, that have lived, have been most distinguished for their zeal in promoting science, and the interests of humanity; and if a few men of that character have, by a want of domestic economy, or by an excessive hospitality and beneficence, neglected to accumulate property, their re-

putations have supplied its place to their families. The name of Dr. Cullen not only attracted the patronage and bounty of the present king of Great Britain to his children, but served as a draft for respect and civilities to them, in every part of the globe.

From the statement that has been given, you will perceive, gentlemen, that the pains and pleasures of a medical life are of a relative, and optional nature; and that the degrees of each of them which shall be suffered, or enjoyed, depend upon ourselves. By discharging all the duties to our profession and to our patients, which have been enumerated, with integrity and diligence, the sum of our pleasures will far exceed our pains, in the course of our lives.

LECTURE X.

ON THE MEANS OF ACQUIRING BUSINESS AND
THE CAUSES WHICH PREVENT THE ACQUISITION,
AND OCCASION THE LOSS OF IT, IN THE
PROFESSION OF MEDICINE.

Delivered November 4th, 1807.

GENTLEMEN,

MY business in this chair is to teach the institutes and practice of medicine. In order to enable you to apply the facts and principles I am about to deliver to you with success to the acquisition of reputation and property, I shall detain you a few minutes from the subjects of our course while I point out,

- I. The means of acquiring business; and,
- II. The causes which prevent the acquisition and occasion the loss of it in the profession of medicine.

The subject is an interesting one, and, if properly handled, will be useful; and where it does not suggest any thing profitable, it will serve to unfold new facts in the history of the mind of man as he stands related to health and life, and thereby to lessen the surprise and mortification you might otherwise experience in your medical intercourse with him.

To the first head, belong,

1. Such means of acquiring business, as are honourable.
2. Such as are artificial and accidental; and
3. Such as are dishonourable.

The honourable methods of acquiring business are,

1. Great application to study, in order to aid observation and experience as much as possible by reading, and conversing upon medical subjects.

2. Punctuality in visiting patients, and fidelity in complying with engagements.

3. Inoffensive and acceptable manners, consisting in the habitual exercise of self denial as far as it relates to the temper; and in universal civility or politeness.

4. Sympathy with the sick.

5. Attendance upon the poor. There is scarcely a man so depressed in his condition in life, that has not a relation, or friend of more influence in society than himself, to whom his recommendation of a physician often proves of essential service. Even the regular and long continued visits of a physician to the poor, which are only seen by their neighbours, often bring him into notice. Boerhaave, Fothergill, and Cullen, owed their sudden elevation, into extensive and profitable business, chiefly to their being often observed going in and coming out of the huts of poor people.

The following anecdote will illustrate, in a striking

manner, the intimate connexion between interest and kindness to the poor, in the practice of physic.

A physician in this city was called, when a young man, to visit a journeyman carpenter in the autumnal fever. He attended him faithfully for several weeks, and supplied him not only with medicines, but with other articles which are required for the comfort and recovery of sick people. In his daily walks to this patient, he passed through a part of the city where his profession and person were alike unknown. Some months afterwards he was called upon to attend the man with whom his poor patient worked as journeyman. He was successful in curing him. His name and character thereby became known to seven or eight respectable and wealthy families in the neighbourhood from whose business in the course of his life, he derived many hundred pounds.

6. A regard to decency in dress. A physician in a neighbouring state of respectable talents had languished for some time in a situation far below his merit. A friend suggested to him that he was too negligent of his person. From that time he became so attentive to neatness and taste in his dress, as to attract the attention of all who saw him. Soon afterwards he rose into business, and now ranks among the most popular physicians of our country.

7. A respect for religion, and regular attendance upon public worship. These are signs of moral habits in a physician, and are pledges to sick people of integrity and punctuality for his attendance upon them. A physician in this city was once sent for to

see the wife of an old man who lived upon the income of a small estate, and whose principal business seemed to consist in preparing for the world to come. The physician was at that time a stranger not only to this man's character, but his name. He sat down by his wife; but before she gave him the history of her disease, the old man said to him "You may be surprised at my sending for you in preference to our old family physician. But I was led to do so by my having long observed your constant attention and decent behaviour in church." The pew of this old man adjoined the pew of the physician.

8. Cures performed of difficult diseases have often introduced young physicians into extensive business, especially if they had previously baffled the skill of old physicians. Linnæus when a young man gave a lady of high rank some lozenges, by which he relieved her of a troublesome cough. One night at a card table she was observed by the Queen of Sweden, to put something into her mouth. Upon being asked by the Queen what it was, she told her it was a medicine for a cough from which she had found great benefit. The Queen inquired for the name of the physician who had presented it, and consulted him in her own case; and from this accident, was derived the beginning of the reputation and business of Linnæus in Sweden.

The cure of a Mr. Inge, an only son and an heir to a large estate, of a fever in which he was despaired of by his family physician, laid the founda-

tion for all the fame and business which Dr. Darwin enjoyed for many years at Litchfield. The boldness of his practice, in this and some other cases, exposed him to obloquy from some of his cotemporary and rival physicians. He was accused by them of being "rash, experimental, and theoretic;" but he soon repelled those charges by his dignified conduct and subsequent success; thereby, to use the words of Shakspeare quoted by his female biographer, resembling the "Lion when he shakes to the air, the dewdrops of his mane."

9. The practice of surgery. A young surgeon is often preferred from the perfection of his sight, and the steadiness of his hand, to an old one; and where this is not the case, the want of choice, of which the hurry produced by accidents deprives patients, often affords him early opportunities of discovering his talents and dexterity in his profession. The cures, which are thus performed by him, are so beneficial, and obvious, and generally so magnified, as to become a kind of hot bed of a young physician's business and fame.

10. Writing and publishing a popular and useful book. Large additions were made to the business of Dr. Fothergill by his excellent and well timed treatise upon the malignant sore throat. Dr. Cleghorn was much indebted, for his sudden establishment in Dublin, to his account of the diseases of Minorca; and a new theory of the scurvy introduced Sir Francis Milmon into extensive business in the city of London.

A Diploma honourably acquired by previous study, and an examination in all the branches of medicine, begets immediate confidence in a physician's knowledge; and, when aided by some of the circumstances that have been mentioned, contributes very much to give him a prompt and favourable reception with the public.

The artificial and accidental means of acquiring business in the profession of medicine are

1. The patronage of a great man, or of a fashionable lady, or of several powerful families.

2. The patronage of a political party.

3. The patronage of a religious society. Dr. Mead owed his introduction into business to the influence of a dissenting congregation in London, of which his father was minister. Sir John Hawkins tells us he made it a practice, when his son was called out of church, always to pray publicly for the recovery of the patient he was sent for to visit, by which means he enlisted religious prejudices in his favour.

4. The patronage of an old physician. Many physicians of eminent talents and great knowledge have owed their success to this cause. It is not necessary for a young physician who is thus taken by the hand, to possess uncommon professional merit. Like a piece of bank paper he may be made to pass current for any value his patron is pleased to stamp upon him.

5. Connexions formed by serving in a medical capacity in an army. The attachments of gratitude and friendship formed during the toils and dangers of war,

are generally of a strong and durable nature, and often discover themselves in the patronage which officers of high rank, and great family influence, extend to their military physicians. Sir John Pringle, Dr. Boockelsby, and Dr. Huck Saunders were chiefly indebted to the friends they made in the British army, for their sudden establishment in business in the city of London.

6. Such negative qualities in a physician as render him the favourite of all his brother physicians. There are men of this description in all the pursuits of life. They have nothing positive in their characters. They excite no envy, and stand in no body's way. The dispositions of these men in medicine may be compared to the affinities of copper to all other metals: they unite readily with every mode of practice, and thus become a kind of consultation hacks. A physician who sets out with the qualities, and adopts the conduct, that have been described, seldom fails of acquiring business and fortune in the course of his life.

7. Splendid, or popular acts of friendship, or humanity. Dr. Garth set on foot a subscription in London for removing the body of Dryden from the obscure grave in which it had been privately buried, and procuring for it an honourable interment in Westminster Abbey. This act indicated neither learning nor skill in the profession of medicine; but the doctor's biographer makes the following remark upon it. "It is commonly observed that the making a man's fortune is generally owing to some one

lucky incident; and nothing was perhaps of more service in this respect to Dr. Garth than the opportunity he had of showing what he was, by this memorable act of generosity, tenderness, and piety.”* The degree of eminence and usefulness, to which this incident raised him, may easily be conceived by the following lines which were published by a noble and brother poet during the doctor’s last illness.

“Machaon—sick!—in every face we find,

“His danger—is the danger of mankind.

8. A critical knowledge of the Latin and Greek, and a facility in speaking a great number of modern languages. Dr. Grgory’s elegant “*Conspectus Medicinæ Theoreticæ*” was the foundation of his early reputation in Edinburgh. The medical character of Dr. Akenside became known to the admirers of classical learning from his being one of the best Greek scholars in England; and I have known an instance of a physician who became the oracle in medicine of a respectable family in this city, in consequence of the master of it accidentally hearing him, as he supposed, speak to four passengers in the cabin of a ship just arrived from Europe, in the different languages of their respective countries.

9. Singularity in behaviour, dress, and diet. Great taciturnity, a sententious mode of conversing or the practice of nodding, instead of speaking in company, a large wig and goldheaded cane, have all been the means in different countries of acquiring business in

* Hutchinson.

the profession of medicine. A diet consisting wholly of vegetables introduced a physician into extensive business in South Carolina; and abstinence from certain common articles of food has sometimes had the same influence upon the characters and interest of other physicians.

10. Eccentricity of manners and conduct. Dr. Radcliff of London, Dr. Pitcairn of Edinburgh, and Dr. Butler of Cambridge, owed much of their popularity and business to this cause. There was a physician in New York about the middle of the last century who by aping those physicians succeeded to a high degree of celebrity in his profession. A single anecdote will illustrate his character. A gentleman went from this city to consult him for a disease in his stomach. From the history he gave of his manner of living, the doctor believed it arose from intemperance in eating. After the sick man had finished the detail of his symptoms, he waited in silence for the doctor's prescription. "I have, said he, in an authoritative tone of voice, but one piece of advice to give you; and that is to draw your teeth." By this advice he meant to convey to him an idea, that the too great use of his teeth in eating was the cause of his disease; and that nothing but temperance was necessary to cure it.

11. Several instances might be mentioned in which impiety, profane cursing and swearing, drunkenness, and even the most public acknowledgments of infidelity, and atheism, have contributed to introduce physicians into business. It is difficult from any view

we can take of the human mind, to account for the preference which is given to such physicians by sick people. Perhaps the boldness of their vices, and the extent of their errors, are considered as marks of intrepidity of genius, and talents for deep and extensive investigations upon other subjects; and hence probably their reputation for uncommon skill in medicine.

12. A rejection of the principles of reason in medicine. The success of this mode of acquiring business is founded in the general ignorance of mankind of the nature and operations of the human mind. Reasoning is as much an involuntary act, as the pulsation of the heart and arteries. It is either right or wrong in all its operations. One of the two is necessarily universal in every pursuit of life. All physicians reason: and the only difference between a skilful and an unskilful one consists in the reasonings of the former being just, and of the latter erroneous. The physician therefore, who supposes he renounces reason because he declaims against it, deceives himself as well as other people.

13. Great minuteness in inquiring into the symptoms of diseases. The inspection of the lips and teeth by a magnifying glass, the tasting the urine and sweats, the smelling the fæces, and even getting into bed with sick people in order to discover the quality of their perspiration, have all been practised with success as the means of acquiring reputation and business in medicine.

14. Trifling and absurd refinements in the prescriptions of medicine as to dose, manner of preparation, and exhibition, and attaching important consequences to the neglect of them. This art of acquiring business is happily ridiculed in Dr Moore's Medical Sketches, and in Dr. Adair's Lady Doctor.

15. An affectation of a sudden and intuitive knowledge of a patient's case by feeling but a few strokes of his pulse, or by barely inspecting his countenance. There was many years ago a physician in this city whose dislike to his profession was the means of his reputation and fortune. He hated the sight of a sick room; and as he seldom went into one without being under a previous convivial engagement he hastened out of it as speedily as possible. He seldom sat down with his patients, and never asked more than one or two questions; and yet he possessed their confidence in the highest degree. The supposed quickness of his intellectual operations justified his careless manner, and converted his weaknesses into fame. A lady, whom this physician frequently attended, was once heard to say, she would rather receive a visit from him, if he only opened the curtain of her bed and looked at her, than be attended by all the physicians in Philadelphia. This affectation of intuitive talents is often connected with a neglect of reading, and even a contempt for books. Dr. Radcliff began his medical career with so small a library that Sir Hanse Sloan used to show a catalogue of it as one of the curiosities of his museum. The doctor heard of this act from

one of his friends, who, in order to prevail upon him to add to his stock of books, informed him of the immense number which were possessed by his rival and adversary, who had thus exposed him. "It is perfectly right," said the doctor, "Sir Hanse requires books:" meaning that he had not talents for acquiring knowledge in any other way.

16. Walking, or riding without any definite object, particularly in rainy and stormy weather. This art once introduced a young physician into business in this city. After walking for several hours up and down several different streets and alleys he was observed by a gentleman, who followed him, to return to his own house without stopping at a single door, in his long protracted and circuitous route.

17. Speaking in all companies of the number or rank of patients, or ordering a servant to remain with a carriage before the doors of persons of distinction who are not sick. This art has been practised with success in the city of London.

18. An opinion accidentally true of the cause of a disease. A physician in England was called to see a lady in an erysipelas which extended all over her face. In entering her room, he discovered the shell of a cashew nut. As soon as he saw his patient, he instantly pronounced it to be the effect of that West India fruit. This opinion accorded at once with his patient's, of the cause of her disease, and became the means of establishing him in his profession.

19. An accidental cure, particularly of worms, and that too by medicines often given for other purposes.

20. Prescribing for distressing symptoms only, without a due regard to the nature and danger of the patient's disease. Dr. Bonet mentions an account of a Dr. Palm of Naunburg, who made it a practice to give such a dose of opium to his patients the night after his first visit to them, as to insure their sleeping. The effect of this respite, from pain and wakefulness, was to render him popular and acceptable to his patients ever afterwards.

21. The introduction of a new and pleasant medicine into practice, or of a new and safe mode of performing certain surgical operations. The physician who first inoculated in this city for the small-pox by means of a small puncture, instead of a deep incision in the arm, and prepared the body for receiving that disease by purges and low diet after the manner of Dr. Sutton, instead of mercury, was soon afterwards employed in a number of families to whom he would not otherwise have been known. These improvements in inoculation were happily calculated to seize upon the feelings of the female sex, who govern much more than men in the choice of a physician.

22. An elegant or beautiful person. The religious patronage of Dr. Mead formerly mentioned was much aided in introducing him into business by his dignified countenance and stature; and I have known two instances in which a handsome face procured a speedy and ample revenue from the practice of physic.

23. Lastly, such is the credulity of mankind with

respect to medicine, that a physician has sometimes gotten into business by the accidental circumstance of his being a seventh son.

We come now in the third place to mention the dishonourable methods of acquiring business. These are:

1. Opposing the principles, and traducing the practice and characters, of brother physicians. This method has succeeded in many instances in the large cities of Europe. It is the more certainly effectual if the physician who is calumniated be an object of the envy or the hatred of his brethren. It insures the calumniator their patronage and friendship.

2. Traducing new and popular remedies. The clamours and slanders against bark, opium, mercury, and the lancet, have been fruitful sources of business to many physicians.

3. Performing great and sudden cures, by some of those remedies in a disguised form; extolling at the same time the powers of nature in all diseases, and commending only simple and domestic medicines.

4. Taking undue advantages of brother physicians in consultations, by extraordinary degrees of attention to their patients, neglecting at the same time their duty to their own.

5. Publishing accounts of cases that never existed, and of cures that have never been performed.

6. Charges so low as to allure patients from their old and habitual physicians.

7. Flattering the prejudices of cities, and countries, upon the subject of their health and prosperity.

8. Begetting confidence in talents and education by means of a diploma conferred without merit or purchased by money.

II. We proceed under our second general head to enumerate the causes which prevent the acquisition and occasion the loss of business in the profession of medicine. They are just and unjust.

The just causes of the loss of business are

1. Ignorance in medicine inferred from an ignorance of other things. A physician of a London hospital lost all his business by misspelling the name of his patient's disease on the board which was placed over his bed.

2. A fondness for pleasure discovered by constantly frequenting clubs, theatres, cockpits, and other places of public amusement.

3. Delays in complying with calls to sick people; a want of punctuality in subsequent visits to them; of cleanliness and neatness in the preparation of their medicines; and of correctness in the directions which accompany them. A gentleman once went into a doctor's shop near this city. He saw bottles without stoppers, broken pill boxes, and dirty scales and weights, scattered all over his table. He turned with disgust from the sight, and said to a friend soon afterwards, that nothing should ever induce him to employ that physician. A man's life, said the late Dr. Fothergill, is his best picture. Such a shop is a

true picture of the disorder which pervades its owner's mind.

4. Inattention to the history of tedious cases. There is nothing a patient so deeply resents as this kind of treatment. A physician of this city lost the business of a large and wealthy family for several years, by only glancing his eye over a newspaper during the long detail of the symptoms of a trifling indisposition.

5. A careless or superficial examination of a disease. A neglect to ask questions, rendered important by long practice, has often created a suspicion of incapacity or negligence in a physician, and been the cause of the loss of his business.

6. A harsh and indelicate mode of behaviour, consisting of short answers to questions, and of improper rebukes for not complying with prescriptions.

7. Drunkenness, profanity, impiety, and brutal manners. Here we see the acquisition of business prevented or lost, by the same means in which I formerly said it was acquired and preserved. In order to understand the reason of the opposite influence of these vices, it will be necessary to take notice that a difference in the ages of physicians produces very different effects upon their reputation and business. The vices and manners which exclude a young physician not only from business, but from company, are often tolerated in an old one; nay more, they frequently cease to be disagreeable from habit. And there are instances in which they afford a kind of sinful pleasure from being associated with

the feelings of respect and gratitude for services that are connected with the price of health and life. But another reason for such opposite effects from the same cause may be some of those favourable circumstances, in the conduct or practice of a physician, formerly mentioned, operating upon his character in such a manner as to overbalance the influence of his vices upon his business.

8. An unfavourable prognostic of the issue of a disease, especially if it be delivered in an abrupt and unfeeling manner. King William the third dismissed Dr. Radcliff from his attendance upon him in consequence of the doctor telling him upon being asked what he thought of a swelling in his legs—"that he would not have them for his three kingdoms." A physician in this city some years ago met a gentleman in the street whose family he had long attended, who complained of a giddiness in his head. The physician felt his pulse and advised him to lose blood. The gentleman promised to obey this prescription on the ensuing Sunday. "That may be too late, said the physician, you may be in your grave before that time." The gentleman was so much offended with the plainness of this speech, that he never employed that physician afterwards.

9. Refusing to go out in the night; and deserting old patients during the prevalence of mortal epidemics.

10. There have been instances in which physicians have lost both character and business by weak

and trifling publications upon medicine, also in the last place.

11. By high and extravagant charges.

The unjust causes of the loss of business are

1. The discovery and propagation of new principles, or of new modes of practice in medicine. Here, gentlemen, you will suppose again a part of the first and second heads of my lecture are opposed to each other. I said formerly that the publication of a popular and useful book sometimes introduced a physician into business; and I have just now said, a discovery in medicine has a contrary effect. Both facts are true. Where a new book operates in the former way, it contains an addition only to medical knowledge without any abstraction from it: and hence it is readily admitted; but where discoveries disorganize old habits of thinking and practice, they excite envy and opposition against the authors of them by contemporary physicians. To prove this remark, I need only mention that Dr. Harvey lost all his business after he published his account of the circulation of the blood; and that Dr. Sydenham was thrown into the back ground of his profession, after he introduced depleting medicine and cool air in the cure of inflammatory fevers. The former revolutionized anatomy and physiology; and the discoveries of the latter tended to rob the physicians of London of half their opinions, and perhaps of a great proportion of the emoluments of their practice.

2. The early declaration of the existence of

pestilential diseases in a city or country, and of their originating in domestic causes.

3. Great and unexpected cures of difficult and violent diseases have often lessened the business of a physician, inasmuch as they are ascribed, not to his skill, but to the uncommon strength of the patient's constitution. This is more certainly the case, where the remedies which have effected these cures, have been such as have done violence to the feelings of the patient, or the prejudices of the public.

4. The neglecting to name a disease, or calling it by an improper name. However consistent this conduct may be with the doubtful and changing seats and grades of diseases, many physicians have lost their business from this cause. A physician of great celebrity in London was dismissed by a patient of high rank, for calling the measles a catarrhal fever, on the first day he saw him. The mistake was an easy and natural one, especially as he believed his patient, who was an adult, to have had the measles in early life.

5. Making light of a disease. A physician in this city was sent for, to see a child a little indisposed from teething. He told the parents, that its disease was of a trifling nature, and that it would cure itself. The next day the physician called again to visit this child. Upon asking how it was, the mother told him, he had mistaken its disease; that her neighbours had told her it was a very dangerous one; and that she had sent for another physician, who was of their opinion; and that he had sent the

child a medicine, which had, in a few hours, perfectly cured it.

6. Medicines prescribed unsuccessfully, especially if they give pain. Many physicians have been dismissed from their attendance upon families, in consequence of the ineffectual use of blisters, or of a salivation; and in cases too where they were rendered useless only by the delays, or obstinacy, of sick people.

7. The want of popular and engaging manners. It was this personal deficiency in Dr. Smellie, who possessed the first abilities and skill as a man-midwife, which prevented his rising above the second rank in business, in the city of London; while Dr. Hunter, with fewer advantages from age and experience, soon occupied the first grade in the same profession, in consequence of his talents and knowledge being accompanied with agreeable and insinuating manners.

8. The sudden or even gradual elevation of persons, from a humble rank in life to wealth and consequence in society, often induces a change in their connexions, and in none more frequently than in their physicians; hence another unjust cause of their loss of business. This disposition, in new levies in rank and fashion, will not surprise us, when we recollect how forcibly the presence of a physician is calculated to remind them of the wooden hut, or small and dirty rooms, in which he first visited them. It occurs the more certainly, if at any time

they have been the objects of his private beneficence.

9. There is a cause of the loss of the business of families and individuals, nearly related to that which has been last mentioned, which it is difficult to account for: and that is unexpected cures of desperate diseases, performed by uncommon exertions of skill and humanity, and sometimes by the temporary loss of reputation, from the novelty or boldness of the remedies employed for that purpose. Is it because the persons, who are the subjects of these cures, feel gratitude for their deliverance from a premature grave, to be a debt too great to be paid, and wholly incompatible with their independence? For, however dishonourable to human nature the remark may be, it is an affecting truth, that many people forgive an injury much sooner than an obligation. Account for the fact as we will, there is scarcely a physician who has exercised his profession but a few years, that has not sighed in secret over such poignant acts of ingratitude.

10. Communicating to patients the knowledge of the amount of their pecuniary obligations, or in other words, sending in their accompts, has often been the cause of a physician's losing his business. To the loss thus incurred, there is often an addition of others; for while his accompts are unpaid, they create an irritating sense of obligation, which ripens by time into hostility, and produces not only an abstraction of the business of patients thus offended, but efforts to detach his other patients from him. It is

remarkable when the debt is paid, the hostility ceases. This has been exemplified by a physician formerly of extensive business in this city, who made it a practice to sue his delinquent patients after they left him. In a few instances, after the law had compelled them to do him justice, they employed him again as their family physician.

11. Sickness in a physician and necessary excursions from home, in order to acquire health, have often dissolved for ever the connexion which united him to a numerous circle of patients.

12. Unpopular opinions in politics and religion have sometimes been the causes of physicians losing their business. Dr. Johnson mentions an instance of a physician who lost his business only by changing his religion.

13. Writing poetry, and upon subjects unconnected with medicine. Mankind are in general ignorant of the relation of our science to all subjects; and that the mind acquires a versatility and facility in its operations upon medicine, by being occasionally exercised by other studies. They consider medicine as a trade; and that physician to be the most dexterous workman who knows least of other things. It is said Dr. Armstrong and Dr. Akenside destroyed their medical prospects by the publication of their elegant poems. Dr. Darwin was so sensible of this incident in the history of their lives, that he did not commit his Botanic Garden to the press, until he was assured by several of his friends, that his age, and the long establishment of his medical reputation placed him beyond the reach of the least

injury from the publication of that celebrated performance.

14. And lastly, however trifling and unjust the cause may appear, I have heard of a physician who lost the attendance upon two families in this city in consequence of the offensive noise made by his shoes in ascending their stairs, and entering their sick rooms.

From a view of the subject of our lecture, we are led to make the following reflections:

1. How great are the contradictions, and how capricious are the dispositions of the human mind in its relation to physicians. It would seem as if the apparent allotment of human affairs by "time and chance" applied in a peculiar manner to our profession; and that success in it were as much the effect of the latter, as a high prize in a lottery. But

2. It is consoling to reflect that this is far from being universally true. Where prudence is added to talents and knowledge, and where all the causes of the loss of business that are within the compass of human conduct, are carefully avoided, the chances of success in business are greatly in favour of the physicians who deserve it. The union of the wisdom of the serpent, with the simplicity of the dove, does not produce more solid advantages in any human pursuit, than it does in medicine.

3. To render success equal to merit in acquiring and preserving business, and to defeat all the arts of imposture in our profession, there is nothing necessary but to diffuse medical knowledge among all classes of people. Upon subjects, and in professions

that mankind are acquainted with, they seldom err in the choice of suitable persons to transact their business. Much has been done within the last thirty years to enlighten the common people upon the means of preserving their health, and curing their diseases. But a great deal more remains yet to be done. The means of doing it consist in stripping medicine as much as possible of its technical and useless ceremonies and placing it upon a footing with all the other sciences that are intended for the convenience and benefit of mankind.

LECTURE XI.

ON THE UTILITY OF A KNOWLEDGE OF THE FACULTIES AND OPERATIONS OF THE HU- MAN MIND, TO A PHYSICIAN.

Delivered November 21st, 1805.

GENTLEMEN,

MAN is said to be a compound of soul and body. However proper this language may be in religion, it is not so in medicine. He is, in the eye of a physician, a single and indivisible being, for so intimately united are his soul and body, that one cannot be moved, without the other. The actions of the former upon the latter are numerous and important. They influence many of the functions of the body in health. They are the causes of many diseases; and if properly directed, they may easily be made to afford many useful remedies. Under the impression of this belief, I shall employ the time allotted for an introductory lecture, in pointing out the utility of a knowledge of the faculties and operations of the human mind to a physician.

In the faculties of the mind, I include memory—imagination—understanding—the principle of

faith,—will,—the passions,—the moral faculty,—conscience,—and a sense of Deity.

In the operations of the mind, I include—perception,—association,—judgment,—reasoning, and volition. There are several minor operations, which shall be mentioned in their proper place.

A knowledge of these faculties, and their operations, is useful to a physician in the studies: First, of Physiology, or the history of the functions of the body in its healthy state. Secondly, of Hygiene, or the art of preserving health. Thirdly, of Pathology, or the history of the causes of diseases; and fourthly, of the Practice of Medicine. Upon each of which I shall deliver a few remarks, in the order in which they have been mentioned.

I. A knowledge of the faculties and operations of the mind furnishes many useful analogies, by which we are enabled to explain or illustrate the functions of the human body. Are the actions of the will produced exclusively by motives? The actions of the body are the effects, in like manner, of external and internal impressions made upon it. Is the will devoid of a self-determining power? The body is equally devoid of an independent principle of life. Are many of the operations of the mind influenced by association and habit? So are many of the actions of the body. Is the mind capable of attending to but one thing at a time? The same unity takes place in the bodily sensation. Does the mind require repose, after its operations, in sleep? The body stands equally in need of rest, after motion. Further instances

of the analogy between the mind and the body will be mentioned in another place.

II. In the art of preserving health, a knowledge of the faculties and operations of the human mind leads to the regular exercise of each of them, so as to prevent bodily disease from their torpor or undue exercises.

III. A knowledge of the nature and properties of the mind is still more applicable to pathology, or that science which teaches the causes of diseases. I pass over, in this place, the support which the unity and nature of mental or moral evil afford to the unity and nature of bodily disease, and proceed to remark, that the operations of the mind may be divided into stimulating and sedative. They induce preternatural excitement in the moving fibres of the body; and they reduce this excitement, by the abstraction or expenditure of the substance or quality, on which it depends. Again, the different faculties of the mind, when unduly exercised, act specifically upon certain systems, and parts of the body. Thus the operations of the understanding act chiefly upon the brain; while the passions act upon the whole nervous system, the bloodvessels, the viscera, and lymphatics. They act, like the atmosphere, constantly upon the body, in a sensible or insensible manner. They act moreover with different force, and produce different effects, according to the following circumstances, viz. a difference in predisposition, stage of life, sex, rank, profession, previous moral habits, climate, season, time of day, diet,

drinks, duration; and lastly, according as they act, singly, or combine with each other, in producing similar or counter effects. A dilated account of each of these varying circumstances will be delivered in our pathology. It may be expected from this minute detail of them, that I should name the diseases of which they are the remote or exciting causes; but this would lead me to anticipate the subjects of several future lectures. I shall barely remark, that consumptions, fevers, convulsions, diseases of the stomach and bowels, visceral obstructions, apoplexy, palsy, madness, with a numerous and melancholy train of mental diseases, are all frequently brought on by the undue action of the passions upon the body. There will be less difficulty in admitting this assertion, when I add, that they are not inoffensive even in sleep. They exert morbid effects in dreams; of which there are many proofs in the records of medicine. The unfavourable and unexpected changes we sometimes discover in diseases in the morning are often, I believe, occasioned by the distressing dreams of the preceding night.

The same knowledge of the morbid influence of the operations of the mind, in producing bodily diseases, will enable a physician to explain many other morbid phenomena of the body and mind, particularly the causes of dreams, trances, phantasms, and supposed voices; all of which have been superstitiously ascribed to supernatural influence.

IV. I proceed next to take notice of the effects of certain operations of the faculties of the mind, in

the practice of physic. I shall mention a few instances of their curing diseases, by each of the two modes of acting upon the body which were formerly mentioned.

The exercise of the understanding has often cured headach, and prevented or suspended delirium. The latter has frequently been observed in patients in fevers, who talk to themselves, or mutter incoherent words, when not spoken to; but who instantly recover the use of their reason, when addressed upon an interesting subject by a physician or by any of their attendants. Even an attack of an acute disease has sometimes been obviated by study. Of this, the late unfortunate Mr. Brissot, in his visit to this country, informed me of a remarkable instance in one of his friends in Paris. But where is the studious man, who has not sat down indisposed, occasionally, to his book or his pen, and risen from it, a few hours afterwards, in good health? Nor is it necessary to employ the understanding upon subjects of science or literature, to dissipate light indispositions, or an approaching attack of an acute disease. It produces the same salutary effects, when engaged in the games of cards, chess, and backgammon, even in those cases where no additional stimulus is added, from the desire of gain.

In the treatment of madness, the exercises of the understanding have often had the most beneficial effects. The late Dr. Ash was cured of this disease, by being allured to the study of mathematics, of

which he was fond in early life; and it is well known the same disease was suspended in Mr. Cowper, while he was employed in translating Homer.

The objects of the passions, however numerous they may appear to be, are all included in two operations, namely, desire and aversion. These objects act so promptly in the emotions of anger, terror, and joy, that desire and aversion are scarcely perceived in them.

Slow fevers have been suddenly removed by a paroxysm of anger. It has likewise often suspended the distress of hypochondriasm; instances of which shall be mentioned when we treat upon the cure of those diseases.

Terror has suddenly cured convulsions and spasms in the nervous system. It has likewise removed chronic gout, rheumatism, and palsy.

The different grades of joy have performed wonders in medicine. Many striking instances are recorded of its salutary effects, when it has operated in laughter. Children, it is said, have been cured by it of the rickets. Voltaire relates a story of a lady, who was supposed to be in the last stage of an acute disease. Her mother, who stood weeping at her bedside, prayed for her life, and offered to her Maker all her other children, if the sick one should be spared. A son in law, who had married another of her daughters, and who sat by the bedside, very gravely said, "I hope, madam, you mean, of *one* sex only;" meaning her female children. The lady, who was ill, was so struck with

this speech, that she bursted into a fit of laughter, and from that time recovered. This gentle and pleasant emotion of the diaphragm and its contiguous muscles, produced the same effect upon a cardinal in Rome, in a similar situation. Laughter was excited in him, while he lay in his bed, by seeing a favourite monkey put on his pontifical robes, and strut about his bedchamber, with the solemn face with which he had often seen his master perform his public ecclesiastical duties.

It would require many pages to enumerate all the cures of diseases, that have been performed by faith, hope, love, domestic affection, curiosity, ambition, avarice, anger, hatred, malice, and revenge. It is no objection to the medicinal effects of these passions, that they often bring on diseases. The same thing may be said of opium, bark, mercury, and many others of the most useful articles of the *materia medica*. I have considered faith as a passion or a native capacity, and have placed it before any of the passions of the mind. It is the most active of any of them, in its operations in all the affairs and business of life; and however much we refuse to exercise it upon the truths of religion, we do not live a day without it in our intercourse with the world. We exercise it every time we believe any thing that we have not seen, nor heard, or that we do not know to be true. Its effects are discovered daily in the cures of diseases which are made by quacks and quack medicines. The remedy here, in most cases, is the stimulus of faith upon the body.

We sometimes see its efficacy, in the confidence which sick people place in regularly bred physicians. I have known two instances, in which patients were cured, by their physician assuring them "they could not die of their respective diseases, if they were to try for it." The practitioners of midwifery of both sexes tell us, that labour pains are shortened, by the assurances that are given to their suffering patients, that every throe will be the last. The pain of a surgical operation is often lessened, by telling the patient that the worst part of it has been performed. Hope may be considered as the diet of the mind in sickness. I shall hereafter mention instances of its efficacy in supporting and prolonging life. The sudden and unexpected gratification of the domestic affections, in the arrival of a long absent husband or child, has often produced a favourable crisis in a fever. Hypochondriasm has been cured by love and anger. A morbid irritability of the nerves, contracted by the luxuries of a court, has been cured by the military ambition of the camp. Of the medicinal power of avarice, Dr. Tissot relates the following history. A lady in France was affected with a lethargy. Many applications were used to rouse her, but to no purpose. At length a person, who knew that the love of money was the ruling passion of her soul, put some French crowns into her hand. After a few minutes she opened her eyes, and soon afterwards was restored to the use of her reason, and of her limbs.

The instance related by Dr. Darwin, of a man who revived himself, when debilitated by exercise or labour, by thinking of a person whom he hated, is a striking proof of the efficacy of the malignant passions in imparting vigour and strength to the body, when affected by debility, or a disease of weak morbid action.

Even the sedative passions of fear and grief are not devoid of healing virtues. The hiccup has often, and the epilepsy, and dropsy, have occasionally been cured by fear; and there are many instances upon record, that prove that grief and distress produced by the death of a child, or by family misfortunes, have removed the hysteria, after it had existed for many years in the female constitution. The grief and distress in these cases relieve the mind in the same manner that blisters remove the pains of a fever. They both collect and concentrate diffused irritations, and gradually convey them out of the system.

I have hitherto mentioned the influence of the passions in curing the diseases of the body only; but their efficacy is much greater in curing the diseases of the mind, whether they occupy a part or the whole of its faculties. By means of anger and terror, an understanding and memory, that have been torpid for years, have suddenly been excited into healthy action. By opposing a new and fresh, to an exhausted, passion—by combining two passions against one—by giving a passion, that has operated in a retrograde course, its natural direction—mad-

ness, from the influence of the passions upon the understanding and will, has often been cured, without the aid of any other remedy.

But the empire of a physician who is acquainted with the texture and functions of the human mind, may be extended beyond the diseases which are induced in it by derangement. It may be employed to compose and regulate the passions, when they act with excess or irregularity in the common affairs of life. Of this I shall mention many instances, in the lectures upon the diseases of those faculties of the mind.

In employing the passions as remedies, let it not be forgotten, how much they are varied by all the physical and moral circumstances formerly enumerated; and that the state of the system should not be consulted with more care in a fever, than the variety in the temper and dispositions of the mind, should be studied, in prescribing for its different operations for the cure of diseases.

Much might be added in this place, upon the means of exciting the passions. These means may be divided into moral, metaphysical, and physical. To the first belong the motives derived from the hopes and fears inspired by a sense of Deity, and the prospects of future rewards and punishments. To the second, belongs the proper management of that operation of the mind called association. Of the numerous physical means of exciting the passions, I shall only name music. Its influence over them has been noticed by the philosophers and poets

of all ages and countries; and many instances are recorded, in our books of medicine, of its wonderful effects in the cure of diseases. A knowledge of its powers, and the manner of applying them, should therefore form a part of the education of every physician.

I have thus, gentlemen, briefly hinted only at the importance and utility of a knowledge of the faculties and operations of the mind in the study and practice of medicine. This knowledge should be the vade mecum of every physician. It opens to him many new duties. It is calculated to teach him, that in feeling the pulse, inspecting the eyes and tongue, examining the state of the excretions, and afterwards prescribing according to their different conditions, he performs but half his duty in a sick room. To render his prescriptions successful, he should pry into the state of his patient's mind, and so regulate his conduct and conversation, as to aid the operation of his physical remedies. The means for this purpose are obvious and simple. They consist in inspiring faith, when it can be done consistently with truth, and infusing hope and pleasure into the mind of his patient by a cheerful voice and countenance; by agreeable news and pleasant anecdotes; by removing painful and exciting happy associations of ideas; and, above all, by the apparently casual histories of the recovery of other patients from similar diseases.

It would be easy to multiply instances of the beneficial effects of this practice, particularly that part

of it which relates to dissolving unpleasant and creating agreeable associations of ideas. A gentleman in this city contracted a violent and dangerous fever by gunning. After being cured of it, he did not get well. His gun stood in a corner of his room, and, being constantly in his sight, kept up in his mind the distressing remembrance of his sickness and danger. Upon removing it out of his room, he soon recovered. During the time I passed at a country school in Cecil county in Maryland, I often went on a holiday with my schoolmates to see an eagle's nest, upon the summit of a dead tree in the neighbourhood of the school, during the time of the incubation of that bird. The daughter of the farmer in whose field this tree stood, and with whom I became acquainted, married and settled in this city about forty years ago. In our occasional interviews, we now and then spoke of the innocent haunts and rural pleasures of our youth, and, among other things, of the eagle's nest in her father's field. A few years ago I was called to visit this woman, in consultation with a young physician, in the lowest stage of a typhus fever. Upon entering her room, I caught her eye, and, with a cheerful tone of voice, said only "the eagle's nest." She seized my hand without being able to speak, and discovered strong emotions of pleasure in her countenance, probably from a sudden association of all her early domestic connexions and enjoyments with the words I had uttered. From that time she began to recover. She is now living, and

seldom fails, when we meet, to salute me with the echo, of "the eagle's nest."

The influence of even a single word in infusing strength into the body, by means of the association of ideas, should have taught physicians much more, than they know or practise, of its efficacy in curing diseases. The Persian soldiers, Xenophon tells us, were always invigorated in the onset of a battle by the cry of "Jupiter our deliverer." And the name of Bonaparte, a gentleman who witnessed it, informed me, was used to increase the exertions of the sailors in raising their anchor in the French navy, while that general was adding to the dominions of France by his victories in Italy.

In the proper management and direction of the association of sick people by means of conversation, consists a high degree of skill in a physician. Dr. Cullen possessed an uncommon facility in the exercise of this happy art; and to this he was indebted for much of his success and fame in medicine.

Besides the advantages which a physician may derive from a knowledge of the faculties and operations of the mind in furnishing him with numerous and powerful articles of the *materia medica*, he will find it useful in predicting the issue of diseases in life or death. From a great number of facts upon this part of our subject, I shall select but one, to illustrate and prove the truth of this remark. In some cases of the yellow fever, there is now and then in its latter stage a cessation of all the symptoms of the disease. The pulse, tongue, and tem-

perature of the skin, assume their healthy states. Even the appetite and natural sleep return. In this dark and perplexing condition of the body, it would be impossible to tell whether patients were on the eve of a recovery, or on the brink of the grave, did not the mind emerge from behind this cloud, and indicate death to be at hand, by an unusual degree of indifference to every thing around them; by a tranquil, placid, and sometimes a cheerful disposition; and by patients saying, when they were asked how they were, that "they felt too well."

I have hitherto, gentlemen, spoken only of the utility of a knowledge of the faculties and operations of the human mind to a physician in his medical capacity; but I should do the subject injustice, did I pass over its further usefulness to him as a citizen and a man.

1. In the course of his life, he will often be called upon to give his testimony and sometimes an opinion in courts of justice, upon the influence of diseases upon the mind. To enable him to do this with correctness, it will be necessary for him to know what constitutes derangement; and what degrees of it should exculpate injuries, set aside testimony, or invalidate the disposition of property by a will. Much yet remains to be known upon this subject; and from the ignorance and error of our laws upon it, there is reason to believe cruelty and injustice are often perpetrated by them.

2. The mental science will enable a physician to advise a natural and just order for conducting the

studies of youth, founded upon the gradual evolution of its faculties. He will begin with those branches of science which are acquired by the senses and memory. These will be geography, natural history, civil history, and modern languages. Those branches of science which are acquired by the combined operations of the memory and understanding, will be postponed until a free and general intercourse is established by age and reflection between all the faculties of the mind.

3. In the sciences of theology and morals, a knowledge of the faculties and operations of the mind will enable a physician to discriminate between what is of divine, and what is of human, invention in each of them. He will moreover find proofs of the truth of many things in the sacred scriptures which are obscure, or denied, only because they are not accurately measured by what passes in every human mind.

4. In the science of government a physician will find his mental knowledge of eminent advantage to him, should he be called to take a part in the public affairs of his country. From his knowledge of the debilitating effects of inactivity and confinement upon the understanding and passions, he will be an enemy to slavery and a friend to liberty; and from his frequent opportunities of witnessing the destructive effects of the passions upon the human body, he will be the advocate of those governments only, which filter laws most completely from the passions of legislators, judges, and the people.

I am aware, gentlemen, that the science which I am now recommending to you, is an unpopular one; and that it is often treated as chimerical and uncertain. While it bore the name of metaphysics, and consisted only of words without ideas, of definitions of nonentities, and of controversies about the ubiquity and other properties of spirit and space, it deserved no quarter from the rational part of mankind; but the science, I am speaking of, is as real as any of the sciences that treat upon matter, and more certain and perfect than most of them. As a proof of this, I need only call your attention to the innumerable changes that have taken place in the theories of every branch of what is called physical science, and to the improvements which have taken place in each of them, within the last two thousand years. Very different is the state of phrenology, if I may be allowed to coin a word, to designate the science of the mind. Most of the leading opinions and observations of Locke, Condillac, Hartley, and Reid, may be found in the writings of Aristotle, and Plato; and discoveries in this science are now as rare, as they are in anatomy. The reason of this certainty, and near approach to perfection, is obvious. The mind is the same now, that it was in the time of those illustrious Greek philosophers, and of course exhibits the same phenomena in all its operations to the moderns, that it did to them. It is, moreover, always present with us, and always subject to our observation. It requires no excursions from home, nor apparatus of instruments or agents, to develop

its operations; and hence there is nearly the same coincidence of opinion concerning them, that there is of the qualities of bodies, that act upon the senses. I except, from this remark, the speculations upon the materiality and immateriality of the mind. These have produced different opinions and numerous controversies; but they do not belong to the history of the faculties and operations of the mind, and are no more connected with their application to medicine, and the other purposes that have been mentioned, than a knowledge of the nature of fire is connected with a knowledge of the obvious effects of heat upon material bodies, and their application to the various and useful purposes of life.

From a review of what has been said, of the utility and certainty of the knowledge of the faculties and operations of the mind to a physician, you will not be surprised in being informed, that the history and application of them to medicine will compose a part of the lectures which will be delivered from this chair. I am not singular in considering them as a branch of physiology. It has been done by Dr. Haller, in his large work, under the title of "*Sensus interni*." The subject, gentlemen, is an important one. The mind of man is the first production of creating power and wisdom in our world. Though limited in its capacities, it is infinite in its duration. Though fallen from its original dignity, it has been restored at an infinite price. Temples and palaces—crowns and thrones—nay, the great globe which we inhabit, shall pass away;

but the mind of man shall live for ever. With reverence, therefore, we may apply to it the words of an inspired writer, and address it in the same language in which he addresses the Deity. "They shall perish," meaning the earth and the heavens, "but thou shalt endure; yea, all of them shall wax old like a garment; but thou art the same, and thy years shall have no end."

LECTURE XII.

ON THE OPINIONS AND MODES OF PRACTICE OF HIPPOCRATES.

Delivered November 3d, 1806,

In the room appropriated for the lectures on the Institutes of Medicine and
the Materia Medica.

IN entering this room, and taking my seat in this chair, I have felt unusual emotions. I have been carried back to the year 1762 when the first anatomical lecture was delivered in this country by Dr. Shippen. It was in the statehouse, and to an audience composed of the most respectable citizens of Philadelphia. I have been led to review the little class of ten pupils, of whom I was one, that attended his first course of lectures upon anatomy, in a small room over his father's office. I have been borne by my memory to the time of a public commencement in the year 1765, when Dr. Morgan delivered a plan for cooperating with Dr. Shippen, in establishing a school in which all the other branches of medicine should be taught in this city. My imagination has carried me to the back parlour of Dr. Morgan's house; in which he delivered, to about half a dozen pupils, a course of lectures upon the elements of botany, chemistry, and the materia medica. From

hence I have traced the progress of our school through successive appointments to professorships, and different places of lecturing, (the last of which have been in most instances small, inconvenient, and remote from each other) to the present day, when we behold a numerous and respectable class of students,* assembled in a room appropriated to the professors of the institutes and practice of medicine, and of the materia medica, and connected with a new and spacious building, provided with all the conveniences necessary for the accommodation of the professors of anatomy, surgery, and chemistry. Delightful prospect! and truly honourable to the trustees of the university who have added this fresh and expensive act to many other instances of their patronage of the medical sciences! In contemplating this splendid building, I imagine I see a mighty bulwark for opposing disease and death erected in our country. I behold the votaries of medicine crowding from every part of the United States to seek, within these walls, for the means of conducting this humane and honourable warfare. From every valley and mountain, and from the shores of every river in the Union, I hear blessings pronounced upon the physicians who have been instructed in this place in those arts, by which they have saved a husband, a wife, and a child, from a premature grave, or perhaps preserved a village, a city, or a state from the exterminating ravages of a pestilential fever. Elevated with the retrospect of the rapid progress of our medical

* Upwards of two hundred.

school from its humble origin, to its present flourishing situation, and animated with the prospect of its future and more extensive usefulness, I feel more than I am able to express.

To that Almighty Being, who took our infant institution by the hand and conferred upon it, by the instrumentality of its trustees and professors, its present reputation and prosperity, it becomes us thus publicly to offer our united thanks; and further to supplicate him to inspire its teachers with wisdom and knowledge, and its students with diligence and all the virtues which adorn the profession of medicine, till science and sickness, and time and death, shall be no more.

From these acts of homage to the Supreme Being, and to the founders of our newly erected temple of medicine, I am naturally led to contemplate the origin of our science in ancient Greece, and to select, from a group of physicians, the illustrious father of the healing art as the object of veneration and respect. His name and character associate themselves irresistibly with the event and business of the present day. Mild in his appearance, and dignified in his deportment, with gray hairs loosely flowing over his shoulders, the venerable Hippocrates rises to our view, honoured by his cotemporaries, and enriched with the praises of more than two thousand years. The fame of this great and good man, like a stupendous and solitary mountain, seems to have acquired new height by the wasting effects of time upon the adjacent country. Monuments and statues erected to

perpetuate the memories of heroes and conquerors, have perished with the names inscribed upon them, while the name of Hippocrates, with no other passport to posterity than his writings, still lives in the admiration and esteem of millions in every part of the world. But I must unwillingly quit his panegyric, and proceed to the more immediate subject of the present lecture, which is, in the

First place, to point out such of the peculiar opinions and modes of practice of the great progenitor of our science, as I believe to be correct; and

Secondly, to mention those which I believe to be erroneous.

The subject, you will perceive, gentlemen, is an interesting one; and were I capable of doing it justice, I should rescue from neglect many excellent remarks and precepts worthy of your notice and imitation, and, at the same time, deliver you from the influence of some errors which a splendid and popular character usually imposes upon youthful minds.

In considering the medical opinions and precepts of Hippocrates under both the heads that have been mentioned, I shall select such of them only as are of a prominent nature, and capable of the most extensive application to practical purposes in medicine.

I. Let us, in the first place, attend to those opinions and precepts which I have supposed to be correct or conformable to truth, as established by the experience of successive generations. I shall begin by taking notice that his account of the influence of

climates and seasons upon health and life, accord with the observations which have been made in similar latitudes in every part of the world. He attended closely to the courses of the winds and predicted, in one instance, a pestilential fever from them. He well knew the effects of the absence of winds, and ascribes one of his epidemics to a stagnated atmosphere. But he appears to have seen that epidemics often exist independently of the sensible qualities of the air, and was led to ascribe them to what he calls a "to theion;" by which he meant an unsearchable something in the air; and which he supposed to be derived from the planets. The presence of this unknown principle has been admitted by the physicians of all countries, and is supposed to impart an inflammatory or malignant diathesis to diseases according to its different degrees of activity.

Hippocrates is equally correct in his account of the influence of water and situation upon the human body.

His remarks upon the means of preserving health are worthy of our attention. He advises "not to overcharge the system with too much eating, nor neglect the use of exercise, nor to avoid labour; but by no means to accustom ourselves to too nice a method of living; because those who have once begun by this rule, if they vary in the least from it, find themselves very ill, which does not happen to those who take a little more liberty, and live in a less regular manner."

Before I proceed to enumerate the remedies em-

ployed by Hippocrates I shall first take notice of his account of the character which a physician ought to sustain, and afterwards mention such of his remarks upon the practice of physic as accord with reason and subsequent experience and observation.

“ In a physician (says he) there should be a contempt of money, a sense of shame, modesty and cleanliness in dress, judgment, gentleness, urbanity, promptness of speech, freedom from superstition, and great integrity.”

The cure of diseases, he says, in one place, consists in two things, viz. “ addition, and subtraction,” and in another part of his works “ in doing nothing.” The wisdom of ages is summed up in these excellent rules. They have been since expressed in three Latin words, though in a different order. These are “ abstine, sustine, siste.” The last direction is of the utmost importance, and is generally the last attainment of skill in a physician’s life. It has been expressed in the following words in the Latin language, “ optima medicina, nulla medicina,” the best medicine, in many cases, is no medicine at all. “ Contraries, or opposites, says he, are the remedies of their opposites. Thus, evacuations cure the diseases of repletion; and repletion, those that are caused by evacuations. But care should be taken how we evacuate, or fill up all at once, or too quick or too much. It is equally dangerous to heat or cool again suddenly; for every thing in excess is an enemy to nature.” The truth of this remark is confirmed by the voice of nature throughout all her works. I shall

hereafter endeavour to profit by it in our lectures upon Therapeutics.

In mild diseases, Hippocrates recommends mild medicines; but in violent diseases, such as are powerful. Where internal medicines fail, he advises the use of external caustics. For this I take to be the meaning of "*Ferrum et ignis*" in one of his aphorisms. The words may however bear another translation. They may be intended to convey the necessity of carrying diseases, as military men do strong posts, by "fire and sword."

In all our prescriptions he advises, "that when we do any thing according to reason, though the success be not answerable, we ought not easily, or too hastily, to alter the manner of acting, as long as the reasons we had for it are yet good." This testimony in favour of reasoning in medicine vindicates the character of Hippocrates from the charge of simple empiricism. It is true he does not reason at all times justly upon medical subjects; but his errors in reasoning prove that he does homage to that exalted operation of the human mind. They prove further, that reasoning is so natural to man that he does not, nay more, he cannot, think without it.

If we proceed from these general remarks to consider the histories of diseases from the pen of Hippocrates, we shall find them to be so correct that it is scarcely possible to add any thing to them. The division of fevers into epidemic, endemic, mild, malignant, and sporadic, cannot be improved. His descriptions of solitary cases of fever contain every thing essential to the knowledge of the disease with-

out any of the erroneous and trifling circumstances that fill whole pages of modern histories of cases.

The remedies employed by Hippocrates were all intended, according to his own definition of the business of medicine, to subtract from, or add to, the strength of the body. The former were such as abstract blood. This he did by venesection, and sometimes in both arms at once, and in such quantities as to induce fainting. It is worthy of notice, that he cured dropsies, and an enlargement of the spleen, by means of the lancet. He was a stranger to the use of leeches; but he substituted, in their room, bleeding from the parts that were diseased. These were occasionally the hands, ankles, hams, forehead, tongue, nose, behind the ears, the breasts, and under the arms. Cups, as well as the lancet, were employed for this purpose.

2. He employed purges in acute diseases. The medicines he used for this purpose were white and black hellebore. When these remedies were insufficient to produce the necessary evacuations, he recommends

3. Diuretics, and mentions cucumbers, melons, garlic, leeks, onions, and in some cases cantharides, as proper medicines for this purpose. He likewise advises

4. Sudorifics to aid the operations of bleeding and purging. His remark upon this class of medicines is sensible and just. "All diseases," he says, "are cured by evacuations by the mouth, stool, or urine, or some other such way; but sweating is common to all; that is it takes off all alike." There are many

diseases in which it is impossible to excite a sweat; but there are few diseases in which sweating is not useful; while there are many in which all other modes of depletion are hurtful. There are wants of the first necessity in natural and artificial society. In like manner there are excretions of the first necessity for the restoration of health. The discharge by the pores is one of them. However much other evacuations may contribute to lessen the violence and danger of a disease, a recovery is seldom complete until a moisture or softness pervades every part of the skin.

The remedies employed by Hippocrates to add to the strength of the body, and which have since been called by the different names of stimulants, tonics, and excitants, were

1. The juice of the poppy. This celebrated drug has descended to us with the seal of this great man's name upon it. I shall hereafter mention the cases in which he used it.

2. He employed external frictions, cataplasms, fomentations, vapor, and caustics, to excite the languid powers of the system.

3. He employed hot and cold baths for the same purpose.

4. He made use of a class of medicines which he called lambatives. These were analogous to what are now called lozenges, and were prescribed with a view of obviating that irritation upon the fauces which often induces coughing. Considering the intimate connexion between the tongue, and the membrane

which covers the whole internal cavity of the mouth, with the whole body, it is surprising that more frequent advantages have not been derived from this mode of administering cordials, especially in cases which required a sudden impression to be made upon the system.

5. He recommended, under this head of remedies, exercise and labour. He advises cleaving wood as the best form of the latter, in obstructions of the spleen.

He discovers considerable judgment in the treatment of female diseases, particularly in the use of local remedies for certain diseases of the vagina and uterus.

In his choice of diet and drinks for his patients, he seems to have been regulated by the state of the system. In acute and violent diseases, he judiciously advises liquid, but in chronic and weak diseases he recommends solid, aliment.

His remarks upon critical days in fevers have been confirmed in all countries, but chiefly in those climates which are similar to that of ancient Greece. The mode of practice adopted by Hippocrates in fevers favoured his accurate and extensive knowledge upon this subject.

His prognosis of the tendency and issue of acute diseases discovers an uncommon talent for observation. He has so far exhausted this part of the science of medicine, that posterity has added but little to it. Where his signs of life and death do not accord with modern experience, it may be account-

ed for, by taking into consideration, that even these symptoms are varied by climate and season; and that they have sometimes been different in the same diseases, in successive years. They are likewise varied, as far as they relate to the issue of a disease, by the remedies that have been employed to cure it.

II. We proceed, according to the division of our subject, to mention the errors, in principle and practice, that are contained in the writings of Hippocrates. And here an apology may seem necessary for the liberty I am about to take with a character that has so long been considered as sacred in our schools of medicine. I am aware that time and custom immemorial have made the very name of Hippocrates a necessary seasoning in a medical book, in order to render it agreeable to public taste; but I hope I shall be excused in this undertaking, when I assume to myself a large portion of that want of knowledge and judgment, which has led physicians to entertain an undue reliance upon every thing that came from his pen. His writings were among the first books I read in medicine; and as a proof of my partiality for them, permit me to mention, that I translated his aphorisms into English, before I was twenty years of age.

In admitting the fallibility of Hippocrates, we admit that he was a man; that he lived in the infancy of medicine, and at a time when it was unsupported by the aids and lights of auxiliary sciences; and that from the changes in the climates and manners of the inhabitants of our globe, many of the modes of

practice, which were proper and successful in his hands, have ceased to be so, in the hands of modern physicians.

I shall begin this part of our lecture by taking notice of his ignorance in anatomy. He confounds the offices of the arteries and veins; and afterwards the offices of both, with the nerves and ureters. He ascribes the same uses to nerves, tendons, and ligaments. He mentions but one muscle, and that is the psoas, in the human body. He discovers no knowledge of the circulation of the blood. His account of the heart, the brain, the senses, the intestines, and organs of generation, is so replete with absurdities that it would be disgusting to mention them.

His physiological opinions are fanciful, and often contradict each other. In some parts of his works he adopts the single agency of heat in all the operations which go forward in the human body; again he ascribes the same operations to a power which he calls nature; and to which he attributes the nourishment, preservation, and growth, of all things. He sometimes admits of four primary elements, which are fire, water, air, and earth; and again he resolves all things into what he calls solid, liquid, and humid, principles.

His pathology in many particulars is erroneous. He ascribes a great number of diseases to certain hot, dry, salt, and bitter humors, which, if they ever exist, are the effects only, and not the causes of diseases. He accuses the bile as the cause of madness. This is evident from the encomium he pronounced upon Democritus whom he found investigating the seat of that disease in the liver. I hope to prove to

you hereafter that the deranged state of this, and of its contiguous viscera are either accidental symptoms, or the consequences only of madness.

The signs of diseases delivered by Hippocrates are derived chiefly from the excretions. He frequently mentions the degrees of heat of the body, and of the greater or less disposition of his patients to rest. Of the states of the pulse, upon which modern physicians rely more than upon most other signs, he speaks but three or four times. Even his commentator Galen admits his deficiencies upon this subject.

But the errors of Hippocrates appear chiefly in his treatment of diseases.

He believed in the healing powers of nature; and hence he calls a physician the "servant of nature." The result of his confidence in these powers appears in the histories of many of his cases, most of which terminated in death. The recoveries of his patients, for they were not cures, were generally attended with hemorrhages, abscesses or eruptions upon different parts of the body. It is impossible to calculate the mischief which Hippocrates has done by first marking nature with his name, and afterwards letting her loose upon sick people. Millions have perished by her hands in all ages and countries. I go on to remark, that Hippocrates was the father of nosology. He enumerated 239 general and local diseases, and describes several more to which he has not given names. In designating symptoms, like plants and animals, by specific characters, and after-

wards prescribing specific remedies for them, he has rendered medicine complex, useless, or fatal, in many instances.

From the use of depleting remedies, or what he called "subtraction," Hippocrates derived but little benefit. He forbids bleeding and purging in the early stage of fevers, lest they should prevent the "coction" of certain humors, which he supposed to be the cause of fevers. The parts from whence he drew blood had, in many instances, no connexion with the seats of diseases. He believed in specific medicines, and particularly in specific purges, for all the different morbid humors in the body. He used opium as a cordial, but not to ease pain, nor to induce sleep. He prescribed purges in consumptions and in many other chronic diseases; most of which it is well known are accompanied with so little morbid action as to forbid depleting remedies of all kinds. He advises two or three emetics to be given every month during the winter, and one, every fourth day in the early part of the spring. The baneful effects of this practice, as a means of preserving health, are too obvious to be mentioned.

He forbids bleeding in pregnancy, and abandons, as hopeless, all cases of parturition in which a presentation of the head does not take place.

His materia medica consisted of 304 different articles; most of which are simple herbs devoid of activity. This immense number of medicines sprang from its parent error, nosology. To those physicians who believe in the unity of disease, this large and

expensive stock in drugs will be unnecessary. By accommodating the doses of their medicines to the state of the system, by multiplying their forms, and by combining them properly, twenty or thirty articles, aided by the common resources of the lancet, a garden, a kitchen, fresh air, cool water, and exercise, will be sufficient to cure all the diseases that are at present under the power of medicine.

In reviewing the influence which a confidence in the operations of nature, an attachment to nosology, and the use of a distinct remedy for every disease, must necessarily have had upon the practice of Hippocrates, we cease to be offended at the translation of his "*Ars longa, and vita brevis*" which has been given by the witty author of *Hudibras*. "*The long art,*" meaning physic, says Mr. Butler, "*renders life short.*" The time I hope will soon come, when the rejection of the powers of nature in acute and chronic diseases, and greater simplicity in pathology, and the *materia medica*, will enable us to reverse the words of Hippocrates, and to say "*Ars brevis, vita longa.*" That is, our short, or speedily acquired art, prolongs life.

I have thus, gentlemen, briefly pointed out what I believe to be the errors in the theory and practice of Hippocrates. In executing this task, I have been actuated solely by a regard to the honour and usefulness of medicine; and in order to restrain me from saying an unkind or uncandid word of the father of our science, I have endeavoured to fancy while I was composing this lecture, that he was to occupy

a seat at my right hand, and to hear every thing that I should deliver to his disadvantage. I have fancied further, that under the influence of a belief in those modern opinions and modes of practice which are opposed to his own, the venerable old man, with a magnanimity that belongs only to great minds, would sit with his hand stretched out ready to shake mine as soon as I should descend from this chair, thereby to absolve me of every thing I should say against his system of medicine.

I cannot dismiss the medical opinions and practice of Hippocrates without taking notice of his character as a man. And here I discover not a single error. All his biographers both ancient and modern unite in ascribing to him piety, charity, patriotism, benevolence, integrity, candor, and the highest degree of disinterestedness. Of the fame derived from these sublime virtues, neither time, nor eternity, can ever deprive him: and while the physician perishes in a chrysalis state, the man emerges an immortal and perfect being, and soars with resplendent wings to the regions of eternal day.

I am aware that some defects have been pointed out in the moral character of the subject of our lecture. He has been accused of burning the library of Cnidus, in order to conceal from the world the sources from whence he derived his knowledge. The story is highly improbable; and is refuted by many circumstances in the history of his life.

There are many ways of acquiring medical knowledge; the principal of which are by observation,

reading, experiment, and reasoning. The most productive and independent of these sources of knowledge is observation. The art of printing, by the general diffusion of books, has lessened the resources of knowledge from this quarter, by leading us to attend more to opinions than facts, and to rely more upon the senses of other people than upon our own. That this is the case is evident from the talent and habit of observing; which exists with the most force in persons who seldom open a book: that is in farmers, mechanics and seamen. Here then we discover the cause of the preeminence of Hippocrates over modern physicians in his histories of diseases. He copied only from the book of nature; and it is to the stability, which the truth and correctness of his facts have given to his works, that they have descended to us in safety along the deep and rapid stream of time in spite of the constant tendency of his false reasonings to overset them.

I have made this remark, gentlemen, with a view to recommend to you the same method of acquiring knowledge in medicine that was practised by Hippocrates. The pages of the great book of nature are as open to you, as they were to him; and you are as capable of extracting knowledge from them, as he was in any period of his life. Examine diseases, as he did, with a microscopic eye. You will thus become the disciples of Hippocrates in a more eminent degree than by committing all his writings to memory. Compel the attendants upon the sick to assist you in discovering the signs of the

different morbid states of the body. Lay every person you meet with, whether in a packet boat, a stage wagon, or on a public road, under contribution for facts upon physical subjects. It was in this way, Dr. Franklin informed me, Sir John Pringle travelled through France and Holland; and from the humble source of a common ferryman, the doctor once saw him obtain an important article of knowledge. It was from a fortuitous conversation with a colonel in the British army, that Dr. Sydenham learned the safety and advantages of copious bleeding in malignant fevers.

It is probable a great part of the knowledge of Hippocrates was acquired in the ways that have been mentioned; for we find him recommending to a physician "not to be ashamed to inform himself, though by the meanest of the people, of remedies confirmed by experience." But however great the resources of observation or of knowledge thus obtained may be, it will seldom be useful in this solitary state. To observation, therefore, it will be necessary to add reading; to reading, experiments; and to experiments, reasoning. Principles in medicine can be derived only from the reciprocal influence of all of them upon each other. Observation, reading, and experiments, in the order in which I have mentioned them, resemble the juice of the grape on the vine, and in the press; while reasoning may be compared to the fermenting process which changes it into wine. It belongs exclusively to this sublime operation of the mind to strain the knowledge, de-

rived from other sources, from its feculent parts, and to convert it into pure and durable science.

From a review of the opinions and modes of practice of Hippocrates, we are led, in the

First place, to deplore the influence of his name in perpetuating many of the most popular and destructive errors in medicine. To his authority we are probably indebted for the long and undisputed empire of nature in diseases; for the prejudices in favour of nosology, and specific medicines; for the frequent and indiscriminate use of emetics; and the clamours against bloodletting which have prevailed in every age and country in a greater or less degree for two thousand years. As well might we search in Epictetus for a system of morals, with the new testament in our hands, as seek for rules to regulate the practice of physic in the writings of Hippocrates, with all the discoveries of successive ages at our command. Why should we sit in a cloister illuminated by a torch, when we are permitted to pursue our studies and labours in the open air, and by the light of the meridian sun? There is scarcely a fact or reflection recorded in the works of Hippocrates that is not to be met with in authors who have never read a page of them; and it is remarkable that when he is quoted, it is chiefly to support a fact or an opinion that was discovered or suggested without the aid of his works. Men are often relatively wise and great. Hippocrates lived at a time when, "Fame was cheap, and the first comer sped." Were he to

revive, and enter upon the practice of physic with no other stock of knowledge than that he has left behind him, he would not be equal, in a combat with a violent disease, to a common nurse who had for a number of years administered the prescriptions of modern physicians.

2. We are taught by what has been said duly to appreciate those sciences which have created such an immense difference between the knowledge of Hippocrates, and that of the present day. These sciences are natural history, anatomy, physiology, chemistry, phrenology or the history of the faculties and operations of the human mind.

3. And lastly. While we thus felicitate ourselves upon the present highly cultivated and improved state of medicine, let us check a disposition to pride, by looking forward to a time when there will probably be the same difference between our degrees of knowledge, and those that are to exist hereafter, that now exists between us and Hippocrates. Should discoveries in our science be multiplied but for a century to come, in the same ratio they have been for the last thirty years, this difference will probably take place. Then will the opinions and modes of practice of modern physicians, furnish subjects for animadversion, such as you have heard this day upon those of Hippocrates. Perhaps from the chair which I now occupy, your successors in this seminary may hear expressions of surprise and contempt at our ignorance of the most simple modes of curing diseases which now elude our skill, or of our

tedious, painful, and offensive, remedies for such as are under the power of medicine. Should the humble labours of your teacher, who now addresses you, attract his notice, I hope he will do him the justice to admit, before he consigns his name and opinions to oblivion, that he experienced the same pleasure in renouncing an old error that he did in teaching a new truth; and that the health and lives of his patients, and the improvement of his pupils, were always dearer to him than interest or fame.

LECTURE XIII.

ON THE DUTY AND ADVANTAGES OF STUDYING
THE DISEASES OF DOMESTIC ANIMALS, AND
THE REMEDIES PROPER TO REMOVE THEM.

Delivered November 2d, 1807.

GENTLEMEN,

THE science of medicine is related to every thing. A mere physician, that is, a physician who knows nothing but the sciences which are supposed to belong exclusively to his profession, is a nonentity. To deserve that title in its extensive import, it is necessary for us to know something of the principles and practice of every art and pursuit of man. There is scarcely one of them that does not furnish some useful facts or striking analogies, which may be applied to practical purposes, or to the support of some important principle in medicine. Even the science of morals is capable of affording aid to the healing art by its influence upon the understanding through the medium of the passions. It produces this effect in proportion to the extent of the objects to which we direct our benevolence. The physician who loves the whole human race will always be actuated with more zeal to extend the usefulness of

his profession, than the physician whose affections are confined to the limited circle of his habitual patients. His zeal will be more active, and more impressive upon his understanding, should he descend, in the overflowings of his benevolence, from the human species, and embrace in his studies and labours the means of lessening the miseries of domestic animals. This part of the brute creation have large demands upon us. The design of this lecture is simply to point out the duty and advantages of studying their diseases, and the remedies that are proper to remove them. The subject is an interesting one to private gentlemen as well as to physicians; and I entertain too high an opinion of the good sense and correct views of medical science of my present audience to believe, that a few remarks upon it will be deemed an improper introduction to a course of lectures upon the institutes and practice of medicine.

We are bound in the first place to discharge the important duty to domestic animals which I have mentioned, by the relation that has been established between them and us by the Author of nature. They were created at the same time, and from a portion of the same dust, of which our great ancestor was formed. They are the only part of the brute creation over which man has retained his dominion since his banishment from paradise. "We are to them, says Dr. Hartley, the vicegerents of God, and empowered to receive homage from them; and we are obliged by the same tenure to be their guardians

and benefactors.”* Their subjection to death, and all the diseases and pains which they feel in common with us, are the effects of the same rebellion, against the governor of the universe, which subjected Adam and all his posterity to the same evils.

The diseases of the animals which still roam the forests, and refuse to be subject to man, are few in number, and generally so mild as to yield to the operations of nature. But this is far from being the case with domestic animals. Like the human race, they acquire new and violent diseases by civilization, or by the manner of life to which their connexion with us, and their subserviency to our interests and pleasures, expose them. Even parturition, so perfectly the work of nature in beasts of prey, is often attended with the same difficulty and danger in domestic animals that take place in women. Of this Dr. Bland has mentioned some remarkable instances in his observations upon human and comparative parturition. Similar instances have been communicated to me by Dr. Dewees, as having occurred under his notice while he practised midwifery in the neighbourhood of Philadelphia.

2. We are bound to study the diseases of domestic animals, and the remedies that are proper to cure them, by a principle of gratitude. They live only for our benefit. They cost us nothing in wages or clothing. They require, in exchange for their labour,

* Observations on the frame, duties and expectations of man. Vol. i. p. 415.

and all the other advantages we derive from them, nothing from us but food and shelter, and these of the cheapest and coarsest kind; so that there is constantly due, to them, an immense balance of debt from us. This motive to take care of their health and lives will appear more striking when we consider the specific benefits we receive from each of them. The horse is not only an important appendage to, but a necessary part of the cement of, civilized society. He ploughs our fields. He drags home our harvests and fruits to our barns and cellars. He conveys them from distant countries, over rough and difficult roads, to our market towns and seaports. He receives, in exchange for them, the products of foreign nations, and conveys them to the interior and remote parts of our country. He keeps up the inland connexion between different states by means of stages and posts, and thus favours the quick communication of intelligence, and the increase of national intercourse, commerce, and happiness. He administers to our health and to our pleasures under the saddle, and in harness. He keeps up society and friendship in neighbourhoods too scattered in their population to admit of visits upon foot. In vain would country churches and courts be opened, without the strength of this noble animal; nor could the great system of representative government be supported, in an agricultural country, unless he conveyed the elector to the place of suffrage. In maintaining the freedom and independence of nations, the horse bears a distinguished part. When capari-

soned with the furniture of war, he feels, with his rider, the courage and the pride of arms. In the race, he delights us by his swiftness; in which he exceeds all other fourfooted animals. Nor let us forget his sagacity in discovering roads, and choosing the safest parts of them, when inattention or darkness has rendered his rider or driver unable to discover them. In the physician's midnight excursion to visit the sick, how often has his horse conducted him in safety, (sometimes overcome by sleep) through imperceptible paths, and across deep and rapid currents of water, to the door of his patient, and again back to his own home. Still further, how often has the convivialist, who has sat too long over his evening bowl, owed his life or his limbs to the good temper of this faithful animal, who, in spite of a contrary direction of his bridle, has carried him with unbroken bones to the arms of his servants, to be conveyed by them to his bed in order to dose away the remains of his intoxication.

To the horned cattle we are indebted for many of the blessings and comforts of life. The strength and patience of the ox, in the plough and the team, have added to the wealth of the farmer in every age and country. The cow has still greater demands upon our gratitude. Her milk, in its simple state, furnishes subsistence to a great part of mankind. Its products in cream, butter, and cheese, form the most agreeable parts of the aliment, and even of the luxuries of our tables. A pustule upon her udder supplies a matter which, when introduced into the body,

defends it for ever from the smallpox, and without substituting, in its room, a painful or loathsome vicarious disease. Millions in every part of the globe unite with us in expressions of gratitude to heaven for this important contribution to the happiness of the human race. But our obligations to this benefactor of mankind, and to her whole species, do not cease with their lives. Their flesh affords us the most agreeable aliment after death. Their tallow, and the oil which is interposed between their joints, supply the absence of the sun in candles and lamps, whereby labour and study are profitably extended during a part of the night. Their hair affords a necessary ingredient in the plaster of our houses. Their skins protect our feet and legs, in the form of shoes and boots, from the injuries of the weather. They furnish likewise coverings for our books and pleasure carriages, and saddles for our horses. Their horns supply us with combs; and even their bones are converted when fresh into aliment, and, when dry, into a salt of extensive use in medicine and in a variety of the arts.

Sheep occupy the next rank in the list of domestic animals in their claims upon our science. They afford us, by their wool, a covering from the inclemency of winter during every year of their lives; and by their deaths they supply us with a delicious aliment in the forms of lamb and mutton.

The hog is said, like the miser, to do good only when he dies. But this is so far from being true that he is dishonoured by the comparison. He fattens

upon the offals of our kitchens, and performs the office of a scavenger in cleaning the streets of our cities from putrefying masses of animal and vegetable matters. At his death he bequeaths us his flesh for food, his hair for brushes, and his fat for medical and culinary purposes.

The immense and profitable disproportion between the labour of the ass and the mule, and the expense of their food, render their health of great importance in those countries where wheel carriages cannot be employed to convey the products of the earth to a public market.

The goat by its contributions of the delicate flesh of its young, and of its medicinal milk to our use, is entitled to a share of medical attention.

The courage and fidelity of the dog in defending our persons and property from the midnight assassin and robber, and the usefulness of the cat in destroying or chasing from our houses the mischievous animals that infest our cellars and closets, entitle each of them to an inquiry into the causes and cure of their diseases.

It remains only to mention the claims of poultry, of all kinds, to a physician's care. They adorn our yards and fruit trees with their plumage. They inform us by their crowing, and other noises, of the approach of day. A part of them furnish us with eggs for aliment, with quills for writing, and with feathers for our beds; and all of them, in a greater or less number at a time, generally constitute after death a portion of our banquets, where a display is intended of hospitality or elegance.

In addition to what has been said in favour of domestic animals in their individual capacities, I shall only remark that collectively they lessen the solitude and silence of a country life. They please us with their gambols when young, and delight us by their looks and gestures in mature life, every time they receive food or shelter from our hands. They furnish the means of increasing and perpetuating the fertility of our lands, and finally they gratify us with a sense of our sovereignty over their labour and their lives; and thus furnish us with a small portion of that pleasure which the father of the human race enjoyed, when he received from his Creator the commission of his extensive dominion over all the creatures that live and move upon our globe.

A third reason, why we are bound to study the causes and cure of the diseases of domestic animals, is because nature is wholly *passive* in such of them as are violent, or does harm in her efforts to remove them. This is evident in a more especial manner in the epidemics which sometimes prevail among them. The horses, cattle, and sheep, of large neighbourhoods and extensive districts, are often swept away by those general diseases where no aid is afforded from medicine.

4th. By studying the diseases of our domestic animals we may rescue them from the hands of quacks, who add, to the mischievous and unsuccessful efforts of nature, the evils of absurd, painful, and destructive, remedies. Under this head I shall introduce a passage from the words of Mr. Vial, which

exhibits those evils in the most expressive and affecting language. Speaking of the veterinary science, he says, "At this moment all appears obscured or bewildered by the ill placed confidence of the owners of cattle upon the blacksmith of the parish, upon illiterate and conceited grooms, stupid and listless shepherds, or upon a set of men infinitely more dangerous than all the rest. Who, arrogating to themselves the style of doctors, ride about from town to town distributing their nostrums compounded of the refuse and vapid scraps of druggists' shops to the destruction of thousands, whose varied disorders they treat alike, neither consulting nature, nor art, for the cause or effect.

"Miserable animal! bereft of speech, thou canst not complain, when to the disease with which thou art afflicted, excruciating torments are superadded by the ignorant efforts of such men; who, at first sight, and without any investigation to lead them to the source of thy disorder, pronounce an hackneyed commonplace opinion on thy case, and then proceed, with all expedition to open thy veins, lacerate thy flesh, cauterize thy sinews, and drench thy stomach with drugs adverse in general to the cure they engage to perform."*

5th. It is our duty and interest to attend in a more especial manner to the health of those domestic animals which constitute a part of our aliment, in order

* General Observations on the Art of Veterinary Medicine, p. 16, 17.

to prevent our contracting diseases by eating them. Certain vegetables upon which they feed by accident, or from necessity, impart to the milk and flesh of some of them an unwholesome quality. Great labour sometimes has the same effect. A few years ago a farmer in New Hampshire, who had overworked a fat ox in the time of harvest, killed him and sent his flesh to market. Of four and twenty persons, who ate of it, fourteen died, and chiefly with diseases of the stomach and bowels. Putrid exhalations produce obstructions and ulcers in the livers of cattle, sheep, and hogs, which render them unfit for aliment. They are moreover always unhealthy during the season in which they propagate their species: hence the wisdom of that church which substitutes fish for flesh during a part of the spring months. Even the heats of summer, in middle climates, lessen the wholesome quality of flesh: hence the propriety of living chiefly upon vegetables with a small portion of salted meat during the summer and autumnal seasons.

6th. We are further called upon to study the causes, seats, and remedies, of the diseases of domestic animals, by the duties which we owe to our country and to humanity. The products of agriculture and commerce are often lessened by a fatal epidemic, brought on by diseases which blast the character of animal provisions; and many poor families have been left to suffer all the evils of penury and famine, by the death of a single horse upon whose labour, of a cow upon whose milk, or of a

hog upon whose flesh, they had relied exclusively for subsistence; all of whom perhaps perished by diseases that might have been cured.

7th. By extending our knowledge of the causes and cure of the diseases of domestic animals, we may add greatly to the certainty and usefulness of the profession of medicine, as far as it relates to the human species. The organization of their bodies, the principles of animal life, and the manner in which the remote and proximate causes of diseases produce their morbid effects, are the same as in the human body; and most of the medicines produce in them, and in us, nearly a similar operation. Their acute diseases are the same as ours. They are subject to epidemics from an impure atmosphere, as well as from contagions. Fevers, catarrhs, hemorrhages, dysentery, dropsy, scrophula, vertigo, madness, worms, stone, hydrophobia, and apoplexy, affect horses, horned cattle, sheep, hogs, and dogs. The rheumatism, angina, and tetanus, affect horses. Cows are subject to diabetes. Cancers have been observed in dogs. Cats suffer and die from a disease, which appears to be a form of bilious fever. Cutaneous eruptions and sores are common to them all. In short, when we except the diseases which are the effects of certain trades and professions, of intemperance, of the operations of the mind, and of a peculiar function in the female body, there is scarcely a form of disease mentioned in our systems of nosology, but what is to be met with in domestic animals.

To encourage us to extend to them the benefits of medicine, let us attend to the light and knowledge which several branches of our science have already derived from them. During those ages in which it was deemed criminal to dissect a human body, the bodies of domestic animals afforded the only sources of instruction in anatomy and physiology; and even since those ages of ignorance and prejudice have passed away, many important discoveries have been derived from the same sources, by accident or design.

The discovery of the salivary glands in an ox, by Dr. Wharton; of the fallopian tubes in a ewe, by Rufus; of the thoracic duct in a horse, by Eustachius; of the lacteals in a kid, by Erasistratus; and of the pancreas in a turkey, by Dr. Maurice Hoffman; led to the discovery of the same parts in the human body: and it is well known that the circulation of the blood, and the peristaltic motion of the bowels in man, were first suggested by experiments and observations upon those functions in some of the above named animals.

Many useful hints have been taken from the instincts of domestic animals. They generally retire to places of silence and darkness, and discover an unwillingness to move, and to eat, when indisposed; and thereby teach us the advantages of retirement, rest, and abstinence, in the beginning of acute diseases.

The approach of epidemics is often known by the

sickness of certain domestic animals, or by their deserting our habitations.

Many useful remedies, for the cure of the diseases of the human body, have been discovered by observing their salutary effects upon domestic animals. The hellebore was introduced into practice as a purge, in consequence of its purging qualities having been observed in a goat. The use of the seton, in certain diseases of the human body, was first suggested by its efficacy in the diseases of cattle. The benefits of frictions in glandular diseases are pointed out by the improvement in the quality of the milk, and the increase of its quantity, which are obtained by currying the cow.

The benefits of fasting in fevers are strongly urged by the slow putrefaction of the flesh of domestic animals, which are deprived of food for several days before they are killed.

The benefits of wakefulness, and a standing posture, in curing madness, are suggested by the practice of some of the farmers in England; who tame the most intractable and vicious horses, by confining them in a pound, and keeping them awake, and upon their feet, by pricking them with a sharp nail for three or four days, whenever they show a disposition to sleep or to lie down.

The cure of madness in a dog, by means of a profuse hemorrhage which followed the cutting off his tail, suggests the propriety of copious bloodletting in the hydrophobia. Perhaps a remedy uniformly certain in that awful disease may be reserved to re-

ward the successful application of industry and humanity, to its cure, in the affectionate sentinels of our houses and our lives.

The safety of bloodletting, in old people, is deducible from the appearances of inflammation which are discovered in the bodies of old animals that die of acute diseases. The famous racehorse Eclipse, so long known and celebrated at Newmarket, in England, died in the 26th year of his age of a colic, after two days' sickness. Upon dissecting his body, not only the whole alimentary canal, omentum, and mesentery, exhibited marks of violent inflammation; but the stomach, liver, spleen, lungs, bloodvessels, and glands, all discovered the same and other effects of the highest degree of morbid excitement.* Many other instances of the light which the anatomy, physiology, and remedies for the diseases of domestic animals, have shed upon medicine, shall be mentioned from this chair in our lectures upon the institutes and practice of physic.

8th. We are bound to study the means of preserving the health of domestic animals, by all those precepts in the Old and New Testaments, which recommend kindness to them, and protection from outrage and oppression. A portion of the humane spirit of those precepts has pervaded all countries, and descended in a particular manner to the nations of the east. One of the tales of a philosopher of India has recorded this fact in a striking manner. A

* Vial's Elements of the Veterinary art, p. 9, 10, 11.

traveller, who was permitted to visit the place of torment for wicked men, saw there every part of the body of a man of high rank in flames, except one of his feet. Upon asking the reason why that part of his body alone was exempted from the rage of the fire, he was told that the only kind action that man had performed during his whole life was to liberate a lamb which had been entangled by one of its feet, by means of a briar, in crossing a field; and that, as a reward for that act, his foot was exempted from punishment.

9th. I proceed, in the ninth and last place, to mention a reason for making the health of domestic animals the subject of our studies and care, which I should hesitate in delivering, had it not been sanctioned by the name of a man, whose discoveries in physiological, metaphysical, and theological science, mark an era in the achievements of the human mind: I mean the great and good,—I had almost said, inspired, Dr. Hartly. And that is, their probable relation to us in a resurrection after death, and an existence in a future state. I shall read a short passage from the Doctor's works, upon this subject. After expressing a doubt concerning the redemption of the brute creation, he adds, "How-
" ever, their fall with Adam, the covenant made
" with them after the deluge, their serving for sa-
" crifices for the sins of men, and as types and em-
" blems in the prophecies, and their being com-
" manded to praise God, seem to intimate that there

“is mercy in store for them, more than we may expect, to be revealed in due time.”*

In favour of these remarks of Dr. Hartly, it may be said, that as moral evil and death accompanied each other in the human race, they are probably connected in the brute creation. That they possess nearly all our vices and virtues; that the perfection of the divine government required that their vices should be punished and their virtues rewarded; that reparation should be made to them for their accumulated sufferings in this world; and that the divine bounty discovered in the gift of their pleasures would be rendered abortive, unless they were placed in a situation to make returns for them, in praise and gratitude, in a future state of existence.

It is alike foreign to my inclination, and to the design of this lecture, to enter further into this question. To such of you as wish to see all the arguments that are urged in its favour, from reason and revelation, I beg leave to recommend the perusal of an essay in the works of Dr. Hildrop, a learned and pious clergyman of the church of England, intitled “Free thoughts upon the brute creation.” In whatever way the controversy may be decided, I shall only add, that a belief in the opinion suggested by the physician, and defended by the divine, whose names have been mentioned, is calculated in no one instance to do any harm, but, on the contrary, much good, by increasing our obligations to treat our do-

* History of Man, vol. ii. p. 436.

mestic subjects with tenderness and care. If the opinion be erroneous, let the justice and mercy of the SUPREME BEING, in his conduct to his brute creation, remain unimpeached. The divine government in this world may be compared to the dreary prospect of an extensive and highly cultivated country, on a winter's day. The last revolution of our globe will clothe this prospect with all the beauties of the vernal, and all the products of the autumnal, months. It will then appear that the apparent discord, in the *being* and *end* of all intelligent and animated creatures, was "harmony not understood;" and that all their sufferings were a necessary part of "universal good."

But if the claims of domestic animals be so numerous, and the advantage of attending to their health be so great, and above all, if their high destiny hereafter be in the least degree probable, it may be asked, why do we doom them with so much cruelty to a premature death, and afterwards feed upon their flesh? I answer, that by destroying them we prevent their perishing by hunger; for, in the present state of cultivation of our earth, there would not be subsistence for them and their offspring for more than a few years; by which means their species would soon be extinct. By thus multiplying their numbers, we multiply life, sensation, and enjoyment. We moreover prevent the pains of a gradual death from sickness, and the miseries of a helpless old age. To destroy them by the knife,

therefore, and to use them as a part of our food, is so far from being cruel, that it is an act of kindness and benevolence to them.

To the proposal for studying the diseases of domestic animals, it may be objected that their want of speech will for ever prevent their imparting to us an account of the seats and symptoms of their diseases. This objection, I am aware, will be urged by those physicians who believe that every disease has a specific proximate cause, and requires an appropriate remedy; but students of medicine, who believe that all diseases have *one* proximate cause, will find no difficulty in discovering their existence and force in dumb animals. The full or frequent pulse, the loss of appetite, the dejected head, and the languid and watery eye, are certain marks in all brute animals of one of the most frequent diseases with which they are affected; that is fever. The elevation of the hair on the back of a cat, and its not falling upon its feet when thrown from a moderate height, are the premonitory signs of that disease which has lately been so fatal to that species of animals in Europe and America. The tail of a horse losing its regularity of motion from side to side, indicates that he is indisposed; and the part in which his disease is seated is pointed out, by one of his ears inclining backwards to the side affected. In acute pains, particularly from the colic, he bites his manger. The seat of diseases in the abdomen, where the signs are absent, may be known by pressing the hand upon the whole belly of the animal. It will

discover marks of pain, when the diseased part is pressed. Diseases of the head, lungs, kidneys, limbs, and skin, are as easily known as the same diseases are in the same parts of the human body.

There are indeed circumstances, which favour our acquiring a more accurate knowledge of the diseases of dumb animals, than of those of our own species. From the causes formerly mentioned, the number of their diseases is more limited, and their symptoms are more obvious; for they are not multiplied, nor complicated by intemperance in eating or drinking; nor are they under the influence of passions which suspend or alter them, and, in some instances, prevent their evolutions.

The seats of their diseases, moreover, are more perfectly known, from the greater facility of dissecting and examining their bodies after death. Again, there are circumstances which favour the operation of medicines upon them, of which we are deprived in our fellow creatures. These are, no prejudices against the names or taste of medicines—a rare rejection of them after they have been received into the stomach—and the absence of all fear and solicitude, about the issue of their diseases.

I have then, gentlemen, laid before you a brief detail of the obligations we owe to our domestic animals, and the reciprocal advantages to be derived from extending to them the benefits of the science of medicine. In performing this task, I have endeavoured to become the organ of speech for the

dumb, and a suppliant for creatures that are unable to plead for themselves.

Permit me to recommend the subject to your attention in your future studies. From the knowledge you will acquire of the anatomy of the human body in this University, and of the laws which govern its economy, you will easily comprehend the small deviations from both, which take place in the bodies and functions of inferior animals. By acquiring this kind of knowledge, you will add to the resources of medicine as far as it relates to the human body; and by disseminating it gratuitously in your neighbourhood, you will become the benefactors of your country.

For a while, your knowledge in this branch of science must be acquired by reading, observation, and experiments; for as yet no societies or schools have been established for cultivating or teaching it in the United States.

In all other countries, it has accompanied the advanced stages of civilization. In Greece and Rome, the necessity of offering such animals only in sacrifice, as were perfectly sound, added to the motives for taking care of their health. The Arabians cultivated veterinary medicine with nearly the same zeal that they did the medicine of the human body. In France and Germany the health of domestic animals has for many years been a part of the studies of regularly bred physicians. In St. Domingo, a society called the "Philadelphians," was established many years ago, consisting chiefly of physicians, whose

principal business was to investigate and cure, what they called epizootic diseases; that is the diseases of domestic animals. They favoured the world with one valuable publication upon them, before the civil war in that island put an end both to their labours and their name.

A veterinary school has been lately established in London, under the patronage of some of the most respectable noblemen, private gentlemen, and physicians, in the British nation. Already it has diffused a great deal of knowledge through Great Britain, particularly of the diseases of the horse. Of this knowledge, a considerable portion has fallen to the share of the farmers and farriers, much to the advantage of that noble animal.*

While I lament the want of a veterinary institution in our country, I am happy in an opportunity of mentioning, that the diseases of domestic animals have not escaped the notice of the agricultural society of Philadelphia. They have recommended the study of them, in strong terms, in their late address to the physicians and citizens of the United States; and it would be an act of injustice not to acknowledge, that it was in consequence of the excellent remarks, contained in the part of the address to which I have alluded, being impressed upon me

* The Dublin society of arts have lately established a professorship of the veterinary art, and endowed it with a salary of fifty pounds a year, with a dwelling house for the professor, (Dr. Peele) valued at sixty-six pounds sterling a year. Carr's *Stranger in Ireland*, p. 99.

with peculiar force by the enlightened and patriotic President† of that society, that I was led to select the interesting subject of our lecture for the present occasion.

But in vain will be the efforts of public bodies, and private individuals to disseminate veterinary knowledge in our country, without a provision for regular and oral instruction upon it.

From the public spirit of the trustees of our university, and particularly from their disposition to promote every branch of science connected with medicine, there is reason to believe, that it is only necessary to lay before them the advantages of a veterinary chair, in order to insure its establishment.

Should the subject of the diseases of domestic animals be connected with instruction upon the principles of agriculture, and implements of husbandry, so as to constitute what is called, in some European universities, "economics," or a system of rural economy, it would form a still more useful branch of education, not only for physicians, but for private gentlemen. I have lived to see the medical school of Philadelphia emerge from small beginnings, and gradually advance to its present flourishing condition; but I am not yet satisfied with its prosperity and fame, nor shall I be so, until I see the veterinary science taught in our university.

One of the patriots and heroes of the American revolution, who died suddenly a few years ago, in

† Richard Peters, esq.

his barn yard, said with his last breath to his servant who stood by him, "take care of the creatures." Nearly in the same words which dictated this kind direction, I shall conclude this lecture.

TAKE CARE OF THE HEALTH OF DOMESTIC ANIMALS.

LECTURE XIV.

ON THE DUTIES OF PATIENTS TO THEIR PHYSICIANS.

Delivered November 7th, 1808.

WELCOME this annual season of instruction! Welcome, gentlemen, to this temple of the science of medicine! The scene exhibited by your presence here this day is an interesting one. You hereby renounce the imperfect and superficial mode of acquiring a knowledge of medicine by solitary study. You modestly acknowledge the advantages of seeking to age and experience for improvement in your profession, and in a city which, from its greater wealth and populousness than any other in the United States, affords the greatest opportunities for your teachers to qualify themselves by reading, and extensive and diversified practice, for the task they have undertaken to perform. May each of us be enabled to discharge the respective duties we owe to each other with fidelity and diligence! and may our health and lives, during the labours of the approaching winter, be the care of that Being to whom no human efforts are indifferent, that are calculated to lessen the sufferings of his creatures from disease and pain!

The subject I have chosen for an introductory lecture will appear, when I mention it, to be foreign to the characters and views of most of the gentlemen who compose this assembly. It is "the Duties of Patients to their Physicians;" but a little reflection will convince you that this is not the case. It is incumbent upon us to know these duties, that we may be able to inculcate them; for the performance of them is inseparably connected not only with our rights and interests, but with the success of our practice, and the advancement of our science.

1. The first duty which I shall mention of patients is to choose no man for a physician who has not had a regular education in the profession of medicine. "The man who taught himself physic," Dr. Cullen used to tell his pupils, "had a fool for his master." In no occupation of life do we trust our affairs to men who have not been regularly instructed in it. Knowledge in medicine can only be acquired by public or private instruction. It is true, great cures have been performed occasionally by quacks; but these have always been accidental. Even genius and skill in other sciences, when directed to medicine, are inferior to a regular medical education without them. There is a portion of knowledge which floats about schools of medicine, which is imbibed by every student, without his being conscious of it; and which contributes to give his mind a medical texture. But if this knowledge should not pervade his whole mind, so much of it will adhere to his memory as to render him, even with a dull capacity, a

safe and successful physician in common cases; and these occur much oftener than those of a contrary nature.

2. Patients should prefer a physician whose habits of life are perfectly regular, and who is not devoted to company or pleasure, nor to any other pursuit incompatible with his professional obligations. The proper place for a physician, when not engaged in visiting the sick, is in his study or by his fire side. The nature of his profession renders the theatre, the turf, the chase, and even a convivial table in a sickly season, improper places of relaxation to him. His patients alone are entitled to a monopoly of his time and talents; and it is a breach of contract with them to apply them to any other purpose. His mind, when thus concentrated in his duties to the sick, gives him immense advantages over physicians of opposite habits.

3. A patient should confine the care of himself and his family exclusively and constantly to one physician. He will thereby acquire a correct knowledge of their habits and tempers; of the sympathies and antipathies of their constitutions; and of their individual predispositions to disease: all of which will contribute to render his practice more successful, and, by that means, to advance the credit of medicine.

4. A patient, after his election of a physician, should always apply for advice in cases apparently of the most trifling nature. Fatal diseases often succeed a slight fall, a little bruise, a small tumor, and a scarcely perceptible pain. He should likewise

apply for assistance in the early stage of all violent and acute diseases. Were this always the case, consumptions and external cancers would generally be prevented; and there would be few deaths from fevers. Let not the science of medicine be unduly reproached with uncertainty, or even imperfection. They both arise chiefly from the ignorance and negligence of sick people, in not availing themselves, in time, of the resources of our profession. Patients would do well in considering further, that in proportion to the benefits they derive from early advice, the expense of it will be small. Many a man has been saved from a consumption, by the price of two or three bleedings in its forming state; who, had he neglected it, would have paid for his folly not only the price of his life, but many hundred dollars out of his estate.

5. A patient should be faithful in communicating to his physician the history of the cause of his disease. Debt, love, guilt, intemperance in eating and drinking, and in the use of tobacco, strong tea and coffee; also domestic troubles, when concealed, are all very powerful countercurrents to the efficacy of medicine. Even malice has sometimes had the same effect. Of this Dr. Tissot relates a remarkable case in a man who told him, that he could find no enjoyment in any thing; and that his whole nervous system was disordered, in consequence of a constant and painful hatred which he felt to a person who had injured him. All these sources of disease should be acknowledged to a physician. They will lead him either to increase the strength of his medicines, or

to employ new ones, more suited to the nature of the disease. By thus depositing its secret cause in the bosom of a physician, a patient will often find unexpected relief, not only from his sympathy, but from his influence in removing it. There is no creditor so hardhearted, that would not yield to the solicitations of a physician in behalf of a debtor pining with sickness from the dread of a jail; and if he be unable to render love reciprocal, he may suggest remedies for it. The corrodings of guilt and malice may be lessened or removed in a patient by a pious book, or the conversation of a pious minister of the gospel, recommended to him by a physician. Habits of intemperance, and an undue attachment to tobacco, to strong tea and coffee, have been cured, when confessed, by the addresses of a physician to the interest of a patient, or to his love of life. Even domestic strife has been composed by him, where he has been able to enforce reconciliation and peace, by setting forth the fatal effects of the wrathful and malignant passions upon the body and mind. Let not a patient be afraid of thus making his physician his friend. In doing so, he imposes an obligation of secrecy upon him, and thus prevents his making public what he cannot avoid seeing or hearing accidentally, in his intercourse with his family. Nor let delicacy prevent a disclosure of the cause, seat, and symptoms, of diseases in the female sex. However amiable this virtue may be in common life, it has sometimes been attended with the most serious consequences in medicine. I have seen a

cancer in the breast end in death, in a lady, who concealed it for many years, in its forming state, from the members of her own family; and I once lost a female patient in a hectic fever, for which I had prescribed for many months in vain; the cause of which discovered itself to her daughters as well as to myself, two days before her death, by the offensive smell occasioned by the spontaneous opening of a psoas abscess.

6. A patient should not blend the history of his disease with too minute an account of its symptoms, nor with matters that are not related to it. The mind of man is limited in its capacity of retaining the details of any thing; and where incidents of a trifling nature are connected with such as are important, the latter are often remembered but in part. Characteristic signs of a disease, when mixed with such as are not so, make but a feeble impression upon the mind of a physician. The chaos of words and ideas, thus jumbled together, resembles the description which the Indian gave of the city of London, the first time he saw it. Being asked how he liked it, he answered, "Not at all,—too much houses,—too much men,—too much every thing." One or two circumstances relative to the cause of a disease, and a correct account of a few of its principal symptoms, will convey most of the knowledge of a patient's case, which it is in his power to give. The rest should be made known by his answers to the questions of his physician.

7. A patient should never obtrude the details of his business, nor the history of his family concerns, upon his physician. If they are interesting, they may chase away the history of his disease from his mind; and, whether they are so or not, they will necessarily have the effect of rendering his visits as short and as rare as possible.

8. The obedience of a patient, to the prescriptions of his physician, should be prompt, strict, and universal. He should never oppose his own inclinations nor judgment to the advice of his physician, in the use of any medicine, whether it relate to the dose, or the mode, or time, of taking it. A failure in any one of these particulars may be the loss of a link which may render the whole chain of a physician's plan of cure useless or hurtful. The same remark applies to diet, drinks, and exercise. I know that recoveries have sometimes taken place, where patients have acted contrary to the advice of physicians; and that histories of these recoveries have been recorded as marks of the errors of our profession; but instances of this kind are rare, compared with the number of deaths which have occurred from the refusal or neglect of patients to comply with the prescriptions of their physicians. Under the impression of this opinion, I have sometimes wished, that epitaphs should contain an account of the cause of the death of the persons, whose names and virtues they record. A walk in a graveyard, if this were the case, would be as fruitful of medical, as it is of moral, instruction. On one stone would

be inscribed, "Here lies the body of A. B. who died because he refused to be bled." On a second, we should read, "Here lies the body of C. D. who died because he refused to submit to a gentle course of mercury." On a third, we should read, "In memory of E. F. who died of a relapse of a fever, brought on by eating prematurely a hearty meal of animal food;" while on a fourth, our attention would be arrested by the following inscription: "Stop, traveller, and heave a sigh over female vanity. Beneath this stone are interred the remains of Miss G. D. who died of a simple catarrh, which was converted into a pulmonary consumption, by attending the theatre on a cold evening in January, in a thin summer dress." To every epitaph that has been mentioned, it should be added, the patients acted contrary to the advice of their respective physicians.

9. A patient should never take a medicine of any kind, however strongly it may be recommended to him, and however simple it may appear, without the consent of his physician. It is possible it may interfere with the medicines he is taking; or he may have previously taken it without effect in another form.

10. He should give notice in writing, or otherwise, of all changes in the disease, in the intervals of the visits of his physician.

11. A patient should never admit even the friendly visits of a physician who is not attending him. A question may be asked, or an answer may be given

to a question, without any intention to injure the credit of the attending physician, which shall in a moment destroy his confidence in his remedies, or depress the spirits of a patient below the possibility of being revived. It is no defence of an insinuation against a remedy, that it is a weak or an improper one. It may be so in the hand of one physician, and not so in that of another, from its being a part of a general system of practice, which, though erroneous, yet from its unity, and consistency with itself, is more calculated to be successful, than a mixture of medicines administered under the direction of opposite principles.

12. A patient should never send for a consulting physician without the consent of his family physician. It will be most proper to leave him to choose the person with whom he is to consult; but if this be not done, a physician that is disagreeable should never be imposed upon him. Should this be the case, the patient will suffer by it; for nothing but a strong constitution can save him from being injured or destroyed by the hands of two physicians, who are influenced in their practice by opposite theories in medicine, or who are personally hostile to each other.

13. If a patient be disposed to dismiss his physician, justice requires that he should communicate to him directly, or indirectly, his reasons for it. He may justify a supposed offence, or he may make satisfaction for a real one by a suitable apology; but if he be unable to do either, he may, by knowing his

offence, avoid a repetition of it in his future intercourse with sick people. It is to be lamented that the reverse of this candid practice is too common among patients. Nor is this all. They frequently dismiss their family physician without a just or even imaginary cause, and that too with as little feeling as they dismiss a servant, or dispose of a family horse. To this degradation of his rank in society, they often add the injury of detracting from his reputation in all the circles in which they move, in order to justify their indelicate and capricious conduct.

There are certain minor duties which patients owe to their physicians which, though apparently of a trivial nature, should not be passed over in silence upon this occasion.

1. A patient should always send for his physician in the morning, where the first attack of his disease has not been in a subsequent part of the day. He will thus save his physician much trouble, and receive his visits and advice in the most prompt and useful manner. In sending for him at any time he should avoid fixing upon the precise hour for his visit. Previous engagements, and particularly consultations, will often put it out of his power to comply with such definite requests.

2. A patient should avoid calling his physician unnecessarily from his meals. Inroads upon the time devoted to eating are unkind and unnatural. Nature at this time calls for rest and freedom from interruption. In order to enjoy both, the Spaniards

lock their doors before they sit down to their meals. In Italy, travellers tell us the very servants consider themselves excused from obeying the calls of their masters, when they reply to them "a la tavola, segnior." I am at table, sir. A physician in this city, upon being called from his dinner by a patient, bid his servant to tell him that he was *feeding*; thereby meaning to implore for himself the freedom from labour which even domestic animals enjoy while they are taking their food. Such is the disrespect offered to a physician by this act, that nothing but the necessity of his immediate services in cases of a broken or dislocated bone, an apoplexy, a convulsion, or a rupture of a large bloodvessel, should be considered as a justification of it.

3. A patient should always be in a state of readiness to receive the visits of his physician. His time is so precious, and even his hours and minutes are often so exactly appropriated, that it is improper to keep him in waiting before he is admitted into the sick chamber of his patient. Dr. Fothergill has left behind him a striking proof of the high sense of the injury which an act of this kind inspired, and an example of the conduct which a physician should pursue upon such occasions. He was requested to visit a lady of high birth, and the wife of a nobleman of one of the most ancient families in Great Britain, at ten o'clock in the morning of the next day. He called at her house at the appointed hour. Her ladyship sent him word that she was at breakfast, and begged he would wait in her drawingroom until she

had finished her meal. The doctor instantly disappeared. She sent for him a second time. The doctor answered her message by her servant in the following words. "Tell thy mistress I live in Red Lion Square, and shall be pleased to give her my advice at my house, between eight and nine o'clock in the morning, at any time she pleases." This answer excited great indignation; and many odious epithets were applied to the doctor for his supposed insolent conduct. A few days afterwards he received a polite note from her ladyship informing him that she would wait upon him, for his advice, the next morning at the time appointed in the message he had sent to her. She came accordingly. The doctor received her with the respect which was due to her rank and sex, but made no apology for any part of his offensive conduct to her. She left him satisfied with his behaviour and prescriptions. Let it not be supposed that Dr. Fothergill, in this instance, departed from the meekness and forbearance of his character. As an individual and as a man, he might have forgiven the insult that had been offered to him; but as a distinguished member of a profession which he loved and honoured, it was his duty to assert and establish the rights of the physician.

4. As physicians often enter the houses of their patients fatigued with labour, overcome with heat, benumbed with cold, or dripping with rain, they should meet them with sympathy and endeavour to alleviate their sufferings before they conduct them into their sick rooms. Such refreshments should be

offered to them as are known to be agreeable to their habits (provided ardent spirits be no part of them) and even the repose of a bed should not be withheld, for a few hours or a night, where great fatigue or previous want of sleep has rendered nature impatient for it.

I have thus pointed out the duties which a patient owes to the profession of medicine, and to his family physician, during his sickness. It remains now that I mention the duties which he owes after his recovery.

The first that I shall notice is, to speak well of his services. This is a cheap mode of discharging a part of the debt which a patient owes to his physician; but to the physician it is often a source of business and fame. He should do justice to his humanity and punctuality in his attendance upon him as well as to his skill. He should conceal every instance of forgetfulness, or of a contrariety between the issue and expectations from the operation of a medicine, if any such have occurred. In speaking of his cure, he should avoid ascribing it to a consulting physician, if he has been attended by one; for the natural termination of a disease, or the previous operation of medicines given before a second physician was called, may render his cure the result of the united efforts of nature and of the skill of both his family and consulting physician. In speaking of his recovery under the care of a single physician only, he should avoid giving the whole credit of it to any one remedy. This remedy is generally the last that has

been given. Had it been administered sooner, it would have been useless, or perhaps have done harm. It probably required all the medicines that had been previously taken to prepare the system for its successful operation. Many errors have been introduced into medicine, particularly into the *materia medica*, by this want of discrimination in patients between cause and effect, in the remedies by which they have been cured.

The last duty which a patient owes to his physician is to remunerate him for his services. In order to enable him to fulfil this duty in a proper manner, it will be necessary to mention the claims of a physician upon his patient for compensation. To qualify himself for the service he has rendered, he spent his youth in painful, and, in some instances, in disgusting studies. He has perhaps visited foreign countries, and, either at home or abroad, expended the whole of his patrimonial property in acquiring a knowledge of his profession. To enable him to get into business, he has passed the first seven or ten years of his life in labouring for nothing among the poor, and in deriving, from fortuitous business, only a bare subsistence. From the deduction of the time that has been mentioned, and from the premature death or old age induced by his labours, the years, in which it is possible for him to accumulate property, are reduced to a small number. His whole life during these years is one continued stream of labour, self denial, and solicitude. The lawyer relaxes his mind and body in the intervals of courts,

and the divine recruits the strength he expends on Sundays, by the rest of intermediate weeks. But no such relaxation or rest is known by a physician. The soldier forgets the toils of his campaigns in his winter quarters, and the sailor the dangers of the sea in the revels of a port; but there are no winter quarters, and no temporary haven, for a physician. The merchant passes his evenings undisturbed with his family in the town and country; but the physician passes his evenings in the sick rooms of his patients, or alone in his study. The mechanic and day labourer obey the signals of exhausted nature by retiring to rest at an early hour, and pass their nights in uninterrupted sleep; but the physician is obliged to postpone his hour of rest until the circle of his patients are gone to bed, and is exposed every night to being disturbed in his sleep to attend to the calls of the sick. The city watchman repairs the violence done to his system by his wakefulness during the night, by sleeping the next day; but a physician is obliged to labour the whole day after successive nights passed without sleep. It was a severe act of duty of this kind which deprived Dr. M'Bride, of Dublin, of his reason and the world of his life in the meridian of his years, and in the height of his usefulness. The members of nearly all professions and occupations spend the evening of their lives in retirement and comparative affluence; but the physician is obliged, from the scanty returns for his services, to expose himself to the inclemency of the weather, and to totter up stairs, with the aid of a

banister into his patient's bed chamber long after nature has sighed for a shelter and repose. But the value of a physician's services is further enhanced by his constant self denial. If he live in a city, the charms of the country are hid from him, or seen hastily in his transient visits to his city patients at their country seats. The dull uniformity of the objects of his senses is never broken for a few weeks or even days, by an excursion to a mineral spring or the sea shore, in the season devoted to health and pleasure. He enjoys the worship of his God upon hard terms; for even this is considered as an encroachment upon the time and claims of his patients; and hence he is often called upon by them on the day devoted to that purpose, in preference to any other, from the leisure it affords to give long details of their diseases or to take physic. But if a physician have taught himself to believe that he owes no social duties to his Creator, and therefore does not consider his privation of public worship as an evil, yet he feels in a sensible manner his stolen or partial enjoyment of the theatre, and of musical or convivial entertainments. To the labours and self denial of a physician for the benefit of his patients, is added the most painful solicitude. There are few days in a year in which he has not one or more patients dangerously ill; and some of these are often his particular friends. At these times, his countenance indicates the anguish of his soul. Every object he sees is coloured with melancholy. Neither family nor friends can cheer him for a moment. He passes restless

nights; he quits his bed with the morning light; he walks with hasty steps to the house of his patient; he examines at a distance to see whether its doors or windows exhibit the usual signs of death within them. He trembles while he asks, how his patient has passed the night. If the answer be unfavourable, his distress increases; he walks with a light and trembling step into his room; he sees his pale and ghastly countenance; he hears and feels his groans: but his zeal to save him does not abate with the distress and agitation of his mind. The excited state of his sympathy stimulates his understanding. He flies to a new remedy; he exhibits it with his own hand; he watches its effect; his patient revives; he repeats the dose of his medicine; his symptoms become favourable; and in a short time, he is snatched from the grasp of death. Who can estimate a reward equivalent to such anxiety of mind? It can be measured only by the value of the blessings which he has preserved to his patient. He has executed the commission of an angel of mercy. He has prolonged his life. He has saved his family from dissolution. He has restored him to the light of the sun, to the beauties of creation, and to all the pleasures of domestic, intellectual, and convivial, society. Perhaps he has done even more, by adding to his time for preparing for a future state.

In mentioning the claims of a physician upon his patient for remuneration, let us not forget the peculiar and specific expenses to which his profession exposes him. His education places him and his fam-

ily in the first ranks of society. His business subjects him to the necessity of maintaining an expensive stable, and one or two carriages. His intercourse with strangers imposes upon him frequent acts of hospitality; while the numerous objects of distress from poverty, of which his profession gives him the most intimate knowledge, make large demands upon his charity, or force them from him by an irresistible emotion of pity, even when he is devoid of that celestial principle. In estimating the extent of the rewards due for such sacrifices and services, sentiment can scarcely confine them within any bounds. But in this instance, justice and sentiment are at variance. In support of this assertion, let us appeal to facts that are obvious to common observation. Our newspapers often contain advertisements of the household furniture, books, and medicines, of physicians for sale, who have died in early or middle life. The widows and orphans of such physicians are often met with, in reduced and humble situations; and of the small number of them who are wealthy and independent, how great a proportion of them have become so, by fortunate marriages, successful speculation, or by extravagant exactions from their patients, and a sordid economy, alike disgraceful to humanity and the profession of medicine. From a view, such as has been given, of the sad reverse of situation to which the death of physicians often exposes their families, I applied many years ago to a gentleman in this city, eminent for his talents in calculating, for a plan of a fund for the support of the widows and children of

physicians, to be created by a liberal subscription in the first instance, and small annual contributions to it afterwards during their lives. He declined complying with my request, because the small number of physicians in Pennsylvania at that time rendered such an institution premature and impracticable. The late increase of physicians in our country has probably removed that objection. I hope a fund for that purpose will be established in every state in the union, should the present system of injustice to physicians continue to render it necessary.

I have thus briefly stated the numerous and powerful claims of physicians upon their patients for remuneration for their services; but we do not expect an equivalent for them. We cheerfully relax from the extremity of our demands; nor do we wish to make any contract for our services while our patients are suffering under diseases, and of course disposed or obliged to comply with the most difficult terms we could impose upon them. We ask only, in the

First place, that payment for our services should be prompt; that is, that it should be made either in part during our attendance, or wholly as soon as our patient is cured: or if frequent illnesses in a family render this impracticable, that we should be paid at the end of every year. A physician should never be permitted to send the same account a second time to a patient; or if he be obliged to do so, interest should be paid upon it from the time of its first delivery. It is remarkable that our laws are more just

to physicians than individuals. They require that a debt due from the estates of deceased persons for medical services shall be paid without deduction, with funeral expenses and servants' wages, thereby constituting it one of the debts of the first obligation; whereas individuals are too apt to treat it as a debt of the last obligation, and to neglect the payment of it until all their other debts are satisfied.

2. All letters to physicians for advice should contain a fee in the first instance; and on all subsequent letters not accompanied with fees, the postage should be paid.

3. The compensation for consultations should be higher than for the ordinary services of a single physician. This claim is founded upon the longer time, and the greater punctuality, solicitude, and mental exertion, that are required to attend in such cases, than in those that are of a common and simple nature.

4. When an account is higher than a patient expected, and disproportioned to his resources, we expect to be told so; and from the practice of all the regularly bred physicians in our country, I think I am safe in asserting that his account will be reduced to the level of his wishes; and further, if recent misfortunes in business have rendered it impossible for him to pay any part of it, I am equally safe in asserting, he will be absolved of the whole of his obligation.

5. Where persons who were once in easy circumstances are reduced, I will venture to promise for

my brethren in every part of the United States; that they will not withhold their services from them; nor shall the pious clergyman, who subsists only upon a scanty salary; nor the destitute widow and orphan, nor the hired servant in the families which we regularly attend, ever know the amount of their obligations to us.

From this statement of what we expect, and what we promise in our pecuniary intercourse with our patients, it must appear that a large balance of debt will be due to us; and that full compensation for it can only be received in the consciousness of the faithful performance of duties, which have been accepted in the sight of heaven.

Here I intended to have concluded my lecture; but an event has occurred since we last met in this room, which it would be improper to pass over in silence. The most ancient, and most prominent pillar of our medical school, is fallen; and the founder of anatomical instruction in the United States is no more*. Hung be his theatre in black! and let his numerous pupils in every part of our country, to whom he first disclosed with peculiar elegance and perspicuity, the curious structure of the human body, unite with us in dropping the tribute of a grateful tear to his memory! To all the members of his profession his death should teach a solemn and useful lesson, by reminding them that the knowledge, by which they benefit others, will sooner or later be useless to themselves.

* Dr. William Shippen.

To me, whom age has placed nearest to him upon the list of professors, his death is a warning voice. The next summons from the grave will most probably be mine. Yes, gentlemen, these aids of declining vision, and these gray hairs remind me, that I must soon follow my colleague and your preceptor to the mansions of the dead. When that time shall come, I shall relinquish many attractions to life, and, among them, a pleasure which to me has no equal in human pursuits: I mean that which I derive from studying, teaching, and practising, medicine.

LECTURE XV.

ON THE MEANS OF ACQUIRING KNOWLEDGE.

Delivered November 6th, 1809.

GENTLEMEN,

I BEHOLD you assembled here this day, for the purpose of prosecuting the study of medicine. I view you in the light of a number of young traders, about to undertake a voyage to a distant and foreign country, in quest of wealth and independence, without sufficient knowledge of its dangers, and its commercial objects, to insure your safety and success. The science of medicine has its adverse currents and its shoals, in common with the ocean. It has likewise its pearls of great price, and its trinkets of no value, as well as commerce. A pilot and an interpreter are therefore alike necessary to direct and assist in both undertakings. I do not offer you my hand, nor my tongue, to perform either of those offices. All I shall aim at, is to suggest to you the information I have collected from persons who have ably and faithfully completed one of those voyages; or, in other words, I shall endeavour to lay before you such a plan for acquiring knowledge, as experience has proved to be successful, in the practice

of a number of gentlemen, who have been distinguished, not only in medicine, but in various other branches of science.

Seven modes have been employed for the purpose I have mentioned. These are, OBSERVATION, READING, THINKING, EXPERIMENTING, RECORDING, CONVERSING, and lastly, COMPOSING; that is, reducing knowledge, into a neat and exact order, upon paper. I shall make a few remarks upon each of them.

I. By observation, I mean an attention to all the objects that surround us, so as to become intimately acquainted with them. It consists, not simply in being "all eye,—all ear,—and all grasp;" but in having all the senses of the body constantly excited to receive impressions from every quarter. The knowledge obtained in this way is either obtruded upon us or derived from inquiries. The latter is the most fruitful source of it. To ask questions requires both courage and judgment; for it is an acknowledgment of ignorance; and when not done properly, exposes the inquirer to ridicule and contempt. It is from these two difficulties attending it, that so many persons return from their travels, or pass through life, with no more knowledge than was forced upon them by circumambient scenes and events. A person, who is qualified and disposed to acquire knowledge in this manner, is never idle. Does he take a morning walk? he examines the temperature of the air, the quantity of dew which has fallen in the night, and its influence upon the

fragrance of flowers. Is he a resident in a city, and does he visit the country? he observes the state of vegetation, and discovers the influence of all the different kinds of soils, manures, and weather, upon each of the products of the earth. Is he a resident in the country, and does he visit a city? he directs his steps first to the docks and wharves, and inquires into the state of its commerce; he afterwards visits its manufactories, and discovers every thing that is connected with them. He inquires next into the influence of each of them upon health, morals, and longevity. He attends to the manner in which the persons who are employed in these manufactories are fed and clothed; and finally obtains an account of the private and public amount of their labour. But he looks *down*, as well as *up*, for knowledge; and hence we find, that he never makes an excursion from home, without extorting from fellow travellers upon the road, ferrymen, innkeepers, grooms, waiters, and even beggars, all the numerous and minor articles of knowledge, which arise spontaneously from their respective occupations. It was in this way, Mr. Boyle acquired the greatest part of the immense stock of facts with which his works are filled; and from which he formed his principles in philosophy. Dr. Boerhaave never travelled but once from home, and that was to visit the city of Amsterdam; and yet his lectures abound with the fruits of this excursion. Every art and pursuit of man, in that metropolis of the once united provinces, was made to contribute knowledge to him; and even

the distress of a dog in the street, who had lost his master in a crowd, furnished him with a fact, which he applied afterwards in explaining the nature of perspirable matter. I shall dismiss this first head of our lecture, by remarking that the knowledge, thus acquired by observation, is generally more correct than that which is obtained from any other source; inasmuch as it is subjected to the examination of the senses, as well as to reason, before it is treasured up in the mind. It is most correct, when it is derived from persons who spend but little time in reading or conversation.

II. A second source of knowledge is from books. The advantages of observation are very much limited. They are circumscribed to the industry and life of an individual; but, by means of reading, we avail ourselves of the observations of thousands in different ages and countries; and thus, as it were, multiply ourselves. "When I mix with the world," said Voltaire, "I am subject to every man's humor; but when I enter a library, every man's humor becomes subject to me." "A chair in a tavern," said Dr. Johnson, "is the throne of human felicity." He would have been more correct, had he placed that chair in a library. It is in this repository of the fruits of intellectual labour, that we find an epitome of human knowledge. Here the historian informs, the traveller amuses, the poet delights, and the philosopher instructs, us. Here, past and present time unite; here, all the quarters of our globe, with their kingdoms and

customs, are seen in miniature; and here, we find an abstract of all the opinions and systems of knowledge, that have ever existed in the world. In the choice of books, some judgment is necessary. It is too common to prefer such as are modern only. Upon subjects that are in a state of progression or improvement, as natural philosophy, chemistry, and medicine, this may be proper; but upon many others, more especially theology, morals, and metaphysics, this should not be done. New books, like new plants and animals, are formed chiefly from the decayed materials of old ones. They have all alike their elementary matters; and these matters are often the same, in books upon the same subjects, in successive centuries. They owe their apparent difference wholly to the different modes in which their constituent parts are combined, by means of order and language. In conversing with the late Dr. Nesbitt, some years ago, I was much struck with the great extent and variety of his knowledge; and took the liberty of inquiring, from what sources he had derived it. He told me, in answer to my question, that he lived in Montrose, for many years, next door to a pastrycook; and that his neighbour imported hogsheads of old books from London, every year, to tear up, in order to defend the bottom of his pastry from the excessive heat of his oven; and that before he applied them to that purpose, he sent for the doctor and bade him select for his own use all such as he thought were valuable. He did so; and it was from a library, thus cheaply obtained, that

he acquired the greatest part of the knowledge with which he astonished and delighted all who conversed with him. Let it not appear incredible, that valuable books are thus doomed in hogsheads, and even cargoes, to the ignoble use that has been mentioned. Mr. Addison tells us, in one of his Spectators, that he was led to read the whole of the celebrated Mr. Baxter's works, in consequence of meeting with a fragment of a leaf of a part of them under a piece of pastry at a gentleman's table.

In reading, a selection should be made of such books as are most valuable; and these should be read often, in preference to reading a great number, but once, upon the same subject. If the books thus selected do not contain all that is to be met with in others, they will, by reading them often, suggest what is deficient, and thereby flatter our self-love, by enabling us to teach ourselves. There is a species of intemperance in reading, as well as in eating. Its effects are the same upon the mind, as great variety and excess, in the use of aliments, are upon the body. It bloats the mind, and renders it weak and sickly. It moreover tends to destroy its active powers.

In reading, it will be useful, if our books belong to ourselves, to mark with a pencil, or to insert small pieces of paper between the leaves that contain such passages as strike us. In this way Dr. Franklin read. Books marked in this manner may be looked over half a dozen times, with but little trouble; and the interesting parts of them, by that

means rendered permanent in the memory. In reading books that are not our own, it will be useful to make extracts from them. The poet alludes to the advantages of this practice, when he says, "*Studium, sine calamo, somnium;*" meaning thereby, that we dream only, when we read without a pen in our hands. Mr. Locke has advised this mode of collecting knowledge; and, in order to render it more subservient to our demands, has left an excellent plan of a commonplace book for that purpose. Such passages in books, as are preeminent in thought or utility, should be committed to memory. They will, by this means, be insured against the effects of time and age, more especially if they are preserved in the form of rhyme.

Let us finally remember, under this head, that there is a great difference between reading and study. The former may be compared to exercise; the latter to bodily labour. We read history, and travels; but we study books of science. We rise refreshed from reading Robertson's history of Charles V. and Bruce's search for the origin of the Nile; but we seek for repose after studying the works of Sydenham, and Hartly.

III. Knowledge is acquired by thinking. The advantages of the spontaneous exercises of the faculties of the mind appear in the great superiority which books, written by men who pursue active employments, have over those which are composed by men who pass their lives in a closet or a library. The mind is invigorated by solitary

walking and riding. It is by means of reflection and contemplation, that we combine facts and deduce principles from them. Dr. Sydenham tells us, that his "natural disposition prompted him to spend that "time in thinking, which others employed in reading." Happily for our science, while he neglected to read many books, he was never, not even in his carriage, nor in a sick room, nor in his family, nor in company, without a book before him; but it was the book of nature, from which, by the aid of his thinking powers, he obtained so exact a copy, that it has been esteemed by correct judges, of all succeeding generations, to be equal, in every respect, to the fair original.

The celebrated Algernon Sidney thought as well as read. I had a companion in the college of Edinburgh,* who, in passing by his house, got out of his postchaise, on purpose to view a copse of wood in its neighbourhood, in which he had walked and meditated, while he was composing his famous defence of republican governments.

The benefits of thinking will appear still more conspicuous, when we attend to the exploits of the mind in persons who have lost their eyesight. How profound are the thoughts of Sanderson, in mathematics! and how innumerable are the images and ideas, that are to be met with in the works of Homer and Milton!

* Dr. John Bostock, father to the ingenious Dr. Bostock, of Liverpool.

IV. A fourth knowledge is acquired by means of experiments. All the sciences bear testimony to the truth of this remark. Earth, air, water, fire, animals, vegetables, and fossils, refuse to yield the component parts to any of the means that have been mentioned. They must be tortured by chemical and mechanical agents for this purpose. It is to be lamented that this source of knowledge is less productive than might have been expected, from experiments being often made to establish preconceived theories; and hence we so frequently hear of opposite results from the same experiments. They should however be made; for where they deceive, or fail of producing their wished for effects, they will not perish. In subsequent years and in other hands, they will serve to furnish materials for principles in science.

V. Knowledge is acquired by means of conversation. I exclude, from this head, that desultory exchange of words that takes place upon ephemeral subjects in fortuitous meetings and at convivial tables, and which has been happily called "talk" by Dr. Johnson, and "loose disjointed chat" by Shakespeare. I mean by conversation an exchange of ideas and thoughts conducted with correctness and order, by which all who partake of it, are alike benefited. This intellectual commerce acts in three ways.

In the first place it excites the mind beyond its ordinary tone, and thereby enables it to arrest ideas, and to multiply associations more rapidly than in solitary meditation. The mind in this way may be

said to impregnate itself with knowledge. I have said in another place* that Dr. Franklin once told a friend, that some of his most original thoughts were suggested by the collision of conversation, and that too upon subjects foreign to those upon which he was conversing.

2. By imparting the knowledge we possess by means of conversation, we acquire a new title to it, and render it more durable in our own minds. For this reason Dr. Watts very properly advises young men, when they hear or read any thing they wish to remember, always to repeat it in the next company they go into when it can be done with propriety and good manners. In this way like Shakspeare's character of mercy, "It blesseth him that gives and him that takes." A silent woman, it has been said, seldom possesses a healthy body. It is equally true, a silent man seldom possesses a clear and active mind.

"Thoughts shut up want air,
And spoil, like bales unopened to the sun.
Speech ventilates our intellectual fire.
Tis thoughts' exchange, which, like the alternate push
Of waves conflicting, breaks the learned scum,
And defecates the student's standing pool.

3. And lastly, Conversation furnishes us with knowledge from the observations, reading, and reflections of other people. Mr Fox declared in the British house of commons, that he had learned more from Mr. Burke's conversation than from all the

* Lecture V. On the influence of physical causes upon the intellectual faculties.

books he had ever read in his life. Men are formed by it. It is education in youth; and it is influence in morals, politics, and religion, in every subsequent period of life. The truth of this remark is confirmed by its being generally admitted, that a knowledge of a man's manners may always be obtained by the knowledge of his company. It is from the high opinion I entertain of the improvement to be derived from conversation, that I have constantly advised two or three of the students of medicine in our university to live together in the same house. By talking over the subjects of the lectures, by mutually examining each other, and by the spontaneous controversies to which both frequently lead, and which in private circles have for their objects, truth, and not victory, more knowledge is accumulated and retained in a single winter than by years spent in solitary reading and meditation, or in transcribing lectures, or in contests for the palm of ingenuity or eloquence in debating societies. It was in this employment and under the same roof, that Fothergill, Cleghorn, and Cuming, spent the intervals between the attendance upon the lectures in the university of Edinburgh; and to this, they all owed much of their subsequent usefulness and fame in the profession of medicine.

As a further proof of the utility of this mode of fixing the subjects of lectures permanently in the understanding and memory, I have remarked, that those young gentlemen, who have pursued it with the most industry, have always appeared to the most

advantage when they have been examined for the degree of doctor of medicine.

VI. Knowledge is acquired by recording such facts and thoughts as are suggested by observation, conversation, and reflection. For this purpose a memorandum book should be as essential a part of the furniture of our pockets, as a knife or a handkerchief. Much knowledge perishes, and a good deal of it is incorrect, particularly that part of it which is connected with numbers and quantity, from the neglect of this practice.

The father of the Rev. Dr. Muhlenburg of Lancaster advised him, when he set out in life, not to purchase many books, and informed him that he might easily supply the place of them by carrying a blank book in his pocket divided into two parts: the one to record facts, and the other his thoughts. The doctor adopted this practice; and all who have had the pleasure of his conversation can testify how much he has benefited by it. The advice is founded upon this simple fact: that there is a general sameness in the operations of the mind; and that the similar circumstances, in which we are placed, produce nearly similar results from them. We are struck with reflections in books, which have often passed through our own minds; but have left feeble traces in them, only because they were not recorded nor combined upon paper. The practice of thus recording facts and thoughts has been adopted by many distinguished men. President Edwards often alight-

ed from his horse in travelling, and retired from the road on purpose to collect and preserve the overflowings of his genius into his memorandum book. Voltaire noted down, in large companies, and at a full table, every thing he heard that he wished to remember; and Mr. Pope often rang a bell at midnight while a guest at Lord Oxford's, in order to call up a servant to furnish him with a candle that he might record a thought suggested perhaps by wakefulness or a dream. To a philosopher and a poet, a single thought is often of great value, inasmuch as it combines present enjoyments with the anticipation of future usefulness or fame.

VII. The seventh and last mode of acquiring knowledge that was mentioned is by exercising the mind in composition. It has many advantages.

1. It arrests and fixes ideas when they obtrude themselves too rapidly; and, by the influence of association, it multiplies and regulates them, when the operations of the mind are performed with languor and incorrectness. Dr. Goldsmith was a striking illustration of the truth of the latter remark. In company he was silent, dull, or desultory; but a pen set all the faculties of his mind in motion; and rendered the difference in his appearance as a companion and an author so great, that he acquired the character of "an inspired idiot" among his friends.

2. By composing we learn to reason correctly. By placing facts upon paper, we take into our view a larger number of them at a time; and the eye dwells longer upon each of them, by which means

we are enabled more easily to examine their relations to each other, and to draw just inferences from them. But we not only add to our conviction of the truth of particular opinions by writing in defence of them; but we often, by the same means, convince ourselves of their error. Of this I shall relate two memorable instances. Mr. Gilbert West, and Lord Lyttelton were both members of a deistical club. The former was requested to compose and publish a refutation of the arguments in favour of the truth of the christian religion, from the resurrection of our Saviour. The latter was requested to overthrow the argument, in its favour, from the conversion and apostleship of St. Paul. They sat down in their closets, and spread the facts which support those miracles upon paper. By means of this more connected and permanent view of those facts, than they had been able to take in conversation, and by solitary meditation, they were led to change their opinions, and to compose and publish, but without any concert, defences of the events they had intended to discredit, which are now considered among the strongest external bulwarks of christianity.

3. And lastly, by habits of composition, we enlarge the retentive powers of the mind, and acquire order, perspicuity, and correctness, in speaking.

The speech of an Indian Sachem seldom contains more than three or four ideas. The same thing may be said of nearly all public speakers, however long they may remain upon their feet, who have not been

in the habit of composing and thereby of multiplying and arranging their thoughts.

The late Judge Wilson, Dr. Witherspoon, and Mr. John Adams, were the most copious methodical and correct extempore speakers in the congress of the year 1776. They spoke often and long, but never repeated any thing. Now those gentlemen had been in the practice of composing, in the early part of their lives. I do not confine composition in this case to writing for the press. The same benefits accrue from it in public speaking, where it has become habitual from letter writing and academical exercises; nor do I assert that there are not exceptions to the truth of this remark. Men are now and then born logicians, as well as poets; and hence we sometimes observe copiousness and method in public speakers who have seldom sat down to a writing desk in the course of their lives.

I have thus gentlemen made a few remarks upon the seven different modes of acquiring knowledge which I mentioned in the introduction to this lecture. To form a complete student and well educated philosopher, they should all be combined; for they are as necessarily connected and subservient to each other as the senses of the body; and it is because an exclusive reliance has been placed upon part of them, that the sciences are still in their minority, particularly the science of medicine. Order should likewise be pursued in the employment of them; for a philosopher can no more be formed by a fortuitous

concourse of ideas, than a world can be formed by a similar concourse of atoms.

The economy of our minds renders some situations, and some times, more favourable to profit by each of them, than others. Travelling favours observation by inquiry and reflection. The morning favours reading, experimenting and study; the evening invites to conversation. It was the time appropriated to it, in the polished ages of Rome. The hours of daylight, when practicable, should be employed in composition. Not a page of Mr. Gibbon's celebrated history ever felt the rays of a candle or lamp; and works which are composed by their light are seldom perfectly free from marks of languor or labour in the operations of the mind. There should be no time allotted for recording facts and thoughts. It should be done directly, or indirectly, at all times and in all places. Even where the pencil cannot be employed, a knot in a handkerchief will preserve an idea until it can be transplanted into a memorandum or commonplace book. In short there should be no day nor night to a student; and above all, to a student of medicine. He should always, like a plant, be in an absorbing state. Even his dreams should not be permitted to sport themselves idly in his brain. Useful inferences may be deduced from them by a person who has acquired habits of observation.

As a means of obtaining knowledge, great advantages have arisen from keeping a diary, or at least a record of interesting events. It serves to beget observation, inquiry, recollection, and to create a facil-

ity in composition. This business I know is generally considered as belonging exclusively to seamen and travellers; but every man's life may be considered as a voyage, or a journey, alike replete with incidents and dangers with those which occur upon sea and land. Some of the greatest men that I have known have thus marked their progress through even the most quiet scenes of life, and perhaps have owed much of the extent of their knowledge, and the perfection of their characters, to this practice. I have seen an extract from a Latin diary kept by Dr. Fothergill while he was a student of medicine in Edinburgh. It contained an account of his having breakfasted with one of the professors, who spoke to him, and a fellow student whom he met at his table, only of his frolics when a student at the university of Leyden. The Doctor concludes his account of his conversation with these words: "multum dixit; parvum didicimus." Dr. Franklin kept a diary in early life. I have read a manuscript performance of this kind composed in the twenty-first year of his age, on a voyage from London to Philadelphia. It embraced chiefly the incidents of the cabin, and some facts upon natural history suggested by the fish he saw in the ocean. By elevating the most simple and apparently trifling facts into importance, this diary afforded entertainment and instruction. But it belonged to the pen of Dr. Franklin to impart, to every subject it touched, the lustre, the solidity and the value of gold.

So high is my opinion of the advantages of keep-

ing a diary, as the means of strengthening the mind and acquiring knowledge, that I wish it could be made an early part of education in all our public schools and colleges. A boy should never go from home, nor into company, without being obliged to bring back with him a written account of every thing he has seen and heard that was new to him, or rather, he should be sent from home and into company for this purpose. A more correct judgment might be formed of his talents, and of the specific character of his mind by this practice, than by his attainments from books. The natives of Mexico, travellers tell us, discover the propensities of their children by first suspending the operations of their reason by means of strong drink, and then throwing the tools of different trades before them. The tools, they prefer to play with in this situation, fix their occupations for life. A diary, by discovering the primary objects of attention in a boy, would be a more certain and delicate mode of determining his propensity, and of fixing upon that profession for which he was designed by nature, and in which she would always accompany the exertions of his industry and ambition. For example. Should he record in his diary the eloquent speeches, the pertinent anecdotes, and sallies of wit, of the companies he went into, let him be educated for the pulpit, the bar, or the senate. Should he record facts and opinions that are connected with natural history and philosophy, let him be devoted to the study of medicine. Should he fill his diary with details of battles and sieges,

and the exploits of bravery and heroism, let a commission be procured for him in the army or navy. Should he record in his journal instances of great wealth being suddenly, or gradually acquired by extraordinary skill in business, or economy in living, let him be put in a counting house. Should he dwell with delight upon the dimensions, elegance, and conveniences, of public or private buildings, let him be made an architect. Should the quality or the fashions of the dresses of the persons with whom he associated arrest his principal attention, let a thimble be put upon his finger, and a pair of shears into his hands. And lastly, should the number or quality of the dishes upon the tables, to which he had been invited, fill the pages of his journal, let him be sent into a kitchen to learn a business which I shall not name. It is because the propensities of boys are not discovered or attended to, in early life, by this, or some other means, that we see so many men in situations for which they are not qualified, who would have been respectable or useful in the professions or trades for which they were born. They form the same disease in society which is known among physicians by the name of *error loci*. They are like red blood in serous vessels, bile in the stomach, and aliment in the windpipe. Similar derangements are induced by each of them from their being out of place in the social and animal machines. In making the keeping of the diary a part of the education, or a test of the genius of a boy, great care should be taken to charge him against recording a single anecdote, or reflection

that if published, would give pain to a human creature. Persons who fill their diaries with such matters may be compared to the animals that feed upon carrion. They are unfit for pure and healthy society.

You will readily perceive, gentlemen, that most of the knowledge, acquired in the ways I have mentioned, will be in a crude state; and that many things will obtrude themselves upon the mind in observing, reading, thinking, experimenting, recording, conversing, and composing, which if treasured up in the memory will increase our ignorance, instead of adding to our knowledge. Such are the histories of the incests and rapes and worship of heathen gods, with which the Greek and Roman classics abound, and which, to the disgrace of reason and religion, form a part of the education of boys in christian countries. Such are most of the fables and traditions of modern and ancient nations. Such are the disputes about words and names which have filled whole volumes, in many of our libraries. Such are all dissertations upon alchemical and mystical subjects; and such are most of the novels in all the languages of the world. To prevent the mixture of such trash with knowledge, the understanding should perform the office of a secretory organ, and refuse admission to every thing that is not in unison with truth and utility. In this way Dr. Johnson acquired his stupendous mass of knowledge. Being asked how he retained so perfectly all that he read and heard, he replied, "I make it a rule to remember only what I believe

to be true." And hence there was scarcely any rubbish in his great and comprehensive mind.

Again. There are articles of knowledge which are useful to one class of men, that may be considered as useless to others. As a virtue out of its place is a vice, and as a talent out of its place is a weakness, so knowledge out of its proper place is ignorance. A monarch was once complimented by one of his courtiers upon his uncommon attainments in music. "I am sorry," said the wise and penitent king, "I have wasted so much royal time in deserving your compliment." One of the kings of Sweden was more successful in the kind of knowledge he had acquired. Upon hearing that his enemies spoke with contempt of his ignorance of a particular branch of science, he admitted the truth of their charge; but added, "I am not ignorant of the method of making a small town into a large one," meaning, that he had studied what belonged to his station; and that he knew how to advance the wealth and population of his kingdom. This correspondence, between specific studies and duties, belongs in a peculiar manner to physicians. Our science has its fables and traditions, its disputes about words and names, and useless medicines, its alchemy, its mysticism, and its novels; all of which should be considered as offal matter, and carefully rejected by the student of medicine.

But in vain shall we collect facts, and select such of them as are useful and appropriate, to our pro-

cession, unless we combine them, so as to deduce principles from them. The learned pigs, which are exhibited as shows in our country, "observe" and "think;" but they cannot reason. This protracted operation of the mind can be performed only by man. Should we build facts upon facts, until our pile reached the heavens, they would soon tumble to pieces, unless they were cemented by principles. I shall illustrate the truth of this remark by mentioning the different effects of cool air and cold water, and of opium, while they were used as empirical remedies in fevers. The two former did as much harm as good, while physicians were ignorant of the manner in which they operated. It is only since it has been admitted that cold acts as a sedative, that its effects have been uniformly salutary or inoffensive. Opium, in like manner, killed as well as cured while it was administered simply by the hand of experience. It has saved many thousand lives since it has been given under the direction of a belief of its stimulating powers. Medicine without principles is an humble art, and a degrading occupation. It reduces a physician to a level with the cook and the nurse, who administer to the appetites and weakness of sick people. But directed by principles, it imparts the highest elevation to the intellectual and moral character of man. In spite therefore of the obloquy with which they have been treated, let us resolve to cultivate them as long as we live. This, gentlemen, is my determination, while I am able to totter to this

chair; and if a tombstone be afforded after my death to rescue my humble name for a few years from oblivion, I ask no further addition to it than, that
“ I was an advocate for principles in medicine.”

LECTURE XVI.

ON THE STUDY OF MEDICAL JURISPRUDENCE.

Delivered November 5th, 1810.

GENTLEMEN,

THEY entertain very limited views of medicine, who suppose its objects and duties are confined exclusively to the knowledge and cure of diseases. Our science was intended to render other services to society. It was designed to extend its benefits to the protection of property and life, and to detect fraud and guilt in many of their forms. This honour has been conferred upon it by the bench and the bar, in all civilized countries both in ancient and modern times. That part of our science, which qualifies us to discharge these important civil duties, has been called medical jurisprudence. It embraces a great variety of subjects. I shall briefly enumerate them, in order that you may direct your inquiries to them while you are attending the different lectures upon medicine, which you are assembled to hear in this university. The subjects of medical jurisprudence are,

First, All those different diseases of the mind which incapacitate persons from exercising certain

civil rights, such as disposing of property and bearing witness in courts, and which exempt them from punishment for the commission of crimes.

2. They are all those circumstances in injuries done to the body, which render them criminal in the eye of the law. This head includes wounds of every kind, and requires an exact knowledge of the relative importance of different parts of the body to health and life.

3. They are all those articles, whether produced by nature or art, which are called poisons, and which destroy health and life when taken in small quantities.

4. The state of the body, when destroyed by any of the above poisons; also by hanging, drowning, and famine, whether brought on voluntarily, or by external force.

5. The circumstances which characterize virginity, impotence, sterility, false conception, natural and artificial abortions, times of gestation, and child murder.

6. The circumstances with respect to health, occupation, strength, and bodily organization, which should exempt from civil and military duties. Under this head should be included a knowledge of what are called simulated or feigned diseases.

7. And lastly, they are all those circumstances which influence general health, such as the morbid impregnations of springs of water, unwholesome provisions, sources of putrid exhalations, nuisances of all kinds, and epidemic diseases.

I have thus barely named the subjects of medical jurisprudence. There has been much learning displayed in treating upon them in France, Germany, and Italy. It is to be regretted that the works of Dr. Fodereè, a French physician, contain the only valuable repository of that learning which has reached this country. In Great Britain this science has advanced with more tardy steps than in other European countries. Dr. Percival has only glanced at it in his medical ethics. Dr. William Hunter has furnished a judicious contribution to it in the *London Medical Observations*, in his remarks upon what are called the signs of child murder. A few similar papers are to be met with in other periodical works; but the whole of them, when taken together, by no means furnish any thing like a system upon this subject. But I do not mention books as the only or exclusive sources of knowledge in medical jurisprudence. The lectures you are about to attend upon, anatomy, surgery, chemistry, natural history, materia medica, midwifery, and the institutes and practice of medicine, contain the rudiments of all that is necessary for you to know in order to render you competent witnesses in a court of justice upon all the questions that have been mentioned.

To illustrate the nature and importance of the science I am recommending to you, I shall select a single subject from it, and deliver such remarks upon it as have been the result chiefly of my own observations and reflections. The subject I have chosen for this purpose is, those states of the mind

which should incapacitate a man to dispose of his property, to bear witness in a court of justice, and exempt him from punishment for the commission of what are called crimes by the laws of our country.

Intellectual derangement, which consists in a departure from ordinary habits of thought, speech, and, in certain cases, of conduct, arises from three causes.

1. An acute inflammation of the brain called phrenitis, or phrensy.

2. From chronic inflammation of the brain called mania, or madness. In both these cases the alienation of mind is an original, or, what is commonly called, an idiopathic disease.

3. It arises from what is called delirium, which is a symptom only of a general disease of the bloodvessels, or of some part of the body connected by sympathy with the brain.

Phrensy is known by the mind being *constantly* in a state of alienation or derangement. All the senses deceive in this disease, and the eyes, more than any other sense: hence we hear persons, who are affected with it, address absent persons as if they were present, and call the persons, and even the inanimate objects, that surround their beds, out of their proper names.

Madness is partial and general. In the former, persons are deranged upon one subject only. In the latter, they are deranged upon all subjects. In its highest grade, all the senses deceive, as in phrensy;

and the memory, the passions, the moral faculties, and the will, all partake more or less of the derangement of the understanding. In its more moderate and common grades, all the senses, the ears excepted, are in a sound state; and the memory and moral faculties are wholly or partially unimpaired. Persons in this state of madness reason erroneously from true premises, or draw just conclusions from premises that are false. The disease has exacerbations and remissions, but seldom perfect intermissions where the exacerbations occur in weekly or monthly periods. In all the grades of madness, there is generally a preternatural quickness of the pulse.

Delirium resembles phrensy in the suspension of the senses and memory; but it differs from it in being attended with *intervals* of reason which occur once or twice a day, or every other day in most fevers. The reason, during these intervals, accords with the ordinary habits of the patient. Sometimes this delirium continues without any remission or intermission during the whole course of a fever, except a few hours before death.

I shall now apply the history which has been given of these three forms of alienation of mind to the objects that have been mentioned.

In no stage of phrensy is a person in a condition to dispose of property, or to contract legal guilt of any kind, nor in the following states of madness.

1. When it is general, that is, when persons talk or act incoherently upon all subjects. Nor
2. In its intervals, when those intervals occur af-

ter weekly or even monthly paroxysms of madness. The mind in these cases seldom recovers its habits of correct action.

3. Where persons depart in their feelings, conversation, and conduct, in a great degree from their former habits. Thus hatred to relations and friends who have never injured them; great taciturnity, or great loquacity; sudden acts of prodigality, or economy; liberality to public institutions at the expense of private justice; the evolution of talents for wit and rhyming, and the arts of deception commonly called cunning, when contrary to the tenor of former practices; are all signs of derangement and should constitute solid objections to the performance of acts which the law requires to be performed only in a sound state of mind. There are instances in which madmen talk rationally, but write incoherently. There are instances in which they do both correctly, but act irrationally in all the common affairs of life; and there are instances in which they are rational in one place and not in another. I have known a clergyman whose prayers and sermons in the pulpit discovered every mark of a sound mind, but who was constantly deranged when out of it; and I have heard of a judge in a neighbouring state who was deranged in a high degree in his family and in company, who astonished the court of which he was a member, by the correctness of his opinions and conduct when he took his seat upon the bench. In all anomalous cases of this kind, it will be proper to examine the state of the mind by conversation,

by letter writing, and by conduct, as well as by a change of situation.

Should all the above marks fail of deciding the state of the mind as to sanity, recourse should be had to the state of the pulse. It is, with but few exceptions, more frequent in all the grades of madness than in health. This remark I know is contrary to the histories of this disease that are to be met with in authors; all of whom consider the absence of fever as the characteristic difference between madness and delirium. Should any one doubt of the truth of this remark, I beg leave to refer him to the Pennsylvania hospital, in which there are, at present, between sixty and seventy maniacs; in all of whom, except eight, the pulse is more frequent than in its natural state. The knowledge of this fact has once been applied with success in the administration of the criminal law of the United States. One of the two men who were condemned to die for treason, committed against the general government in the western counties of Pennsylvania in the year 1794, was said to have lost his reason after sentence of death had been pronounced upon him. A physician was consulted upon his case, who declared his madness to be feigned. General Washington, then President of the United States, directed a consultation of physicians upon his case. Dr. Shippen, Dr. Samuel P. Griffiths, and myself, were appointed for that purpose. The man spoke coherently upon several subjects; and for a while the state of his mind appeared doubtful. I

suggested the propriety of examining his pulse. It was more frequent by twenty strokes in a minute, than in the healthy state of the body and mind. Dr. Shippen ascribed this to fear. I then requested that the pulse of his companion, in guilt and in fear, might be felt. It was perfectly natural in frequency and force. This discovery induced us to unite in a certificate, that the man, who was only supposed to be mad, was really so; in consequence of which his execution, as well as that of his companion, were suspended for two months; in which time the popular clamor for their lives so far subsided, that they were both pardoned by the executive of the United States.

Having mentioned the cases in which persons should be considered as incapable of disposing of property, or committing crimes, I shall now take notice of certain morbid states of the mind in which this should not be the case. These are

1. Where the mind is deranged upon one subject only. It is necessary in this case that the subject of derangement should be unconnected with property or morals. I shall illustrate this remark by two or three examples. A certain Simon Browne, a dissenting clergyman in England, believed for many years before he died that God had annihilated his soul; and yet he discovered no defect of understanding upon any other subject. I ask, would it have been proper to prevent this man from disposing of his property? Again, we are told, in the memoirs of Count Maurepas, that one of the princes of the Bourbon family supposed himself to be a plant; and after

fixing himself in his garden, called upon his servant to water him. Notwithstanding this strange alienation of mind, he was sensible in conversation upon all other subjects, and remarkably correct in the management of public and private business. There would certainly have been no reason why this person should not have disposed of his property, or why he should not have suffered the penalty of a breach of the criminal law of his country.

Once more. A gentleman of worthy character became my patient some time ago, who was melancholy from a belief that all his friends treated him with neglect or ridicule. Upon the subjects of property, politics, and religion, he conversed with his usual good sense and correctness. To relieve the anguish of his mind, from the supposed cruelty of his friends, he destroyed his life. His will, made a few days before his death, and written with his own hand, bore every possible mark of a sound mind. The nature of his derangement should have mitigated his punishment, had he taken away the life of one of his supposed enemies instead of his own; for a more poignant injury can hardly be conceived of than ridicule, especially by a former friend.

In each of these cases, the sanity upon all subjects, except those which have been mentioned, was uniform, and alike correct at all times; but we sometimes meet with persons equally sane upon all subjects except one, in whom a word, or an action, that revives the single subject of derangement, never fails to involve the whole mind in disorder. More

observation than I possess is necessary to determine whether such persons should be admitted to the same judicial privileges with persons who have under no circumstances of association or irritation ever discovered signs of general madness.

2. There is a state of mind called "dimance" in France, "A Bee in the bonnet" in Scotland, and "A kink in the head" in England and in this country; in which the faculties of the mind are unusually excited, and perform their offices with preternatural rapidity, and sometimes with a want of relationship in the association of ideas. Such persons should possess all the privileges of citizens with respect to property, and should expiate by their sufferings their violations of the criminal laws of their country.

3. General weakness of intellect bordering upon fatuity should not prevent a man disposing of his property, nor exempt him from punishment for the commission of crimes, provided he has discovered in his intercourse with the world a knowledge of the use and value of money, and has constantly acted under the influence of what are happily called "natural motives" in all the relations of life. The will of Lord Ely was wisely and justly affirmed upon these principles in the British house of lords in the year 1775.

4. To this head belongs, in the last place, that state of mind in which there exists a weakness or partial loss of memory. It is possible a man may forget the names, and number, and even the faces, of his children, and yet not forget that they are the lawful

heirs of his property. It is possible he may forget to call his different coins by their appropriate names, and yet retain a perfect knowledge of their number denominations and uses. He may moreover forget the laws of his country, and not forget the laws of God. A sensibility to the latter often exists and even increases with a total insensibility to the former. I have conversed with many old people who had outlived their knowledge of every thing human; but who retained a lively recollection of the scriptures, and a strong sense of moral obligation. Such persons should be considered as intitled to all the benefits, and subject to all the penalties of the civil and criminal laws of our country.

Before I dismiss this part of our lecture, I shall remark; there are now and then instances of the resuscitation of reason in persons who have long been deprived of it, induced by falls, by terror, or by some violent disease. The mind of Dean Swift awoke from its long repose in fatuity in consequence of an abscess in one of his eyes. Dr. Percival relates an instance of a woman who lived from her infancy to the thirty-fifth year of her age in a state of fatuity, who died of a pulmonary consumption, in which she discovered a degree of intellectual vigour that astonished her family and friends, and particularly the clergyman who attended her in her fatal illness.

There is likewise sometimes a gradual restoration of reason, just before death without any obvious cause, in persons who have passed half their lives in a state of intellectual derangement. Several in-

stances of this kind have occurred under my notice in the Pennsylvania hospital. Such cases must be common in all countries; or Cervantes, who copied all his characters from nature, would not have restored Don Quixote to the use of his reason in the close of his life of folly and madness. In all these cases, civil and criminal acts should be viewed and treated in the same way, as in persons of uniformly sound minds.

It will be proper to remark in this place, that delirium, as related to the civil and criminal law of our country, is often confounded with madness; and that in such a manner as to pervert truth and justice. It differs from madness in the following particulars.

1. It is attended with remissions or intermissions, in which the mind suddenly recovers its natural and healthy state. Reason in delirium, like the sun in a tropical climate, is obscured only by a transient cloud; whereas in madness it resembles the sun obscured by clouds for weeks and months near the polar extremities.

2. In delirium there is generally the absence of muscular action. In madness there is often great muscular excitement.

3. In delirium the eyes are the principal channels of false perception to the mind. In madness the ears principally deceive the patient; and hence the reason why they so often talk to themselves. Upon attending closely to the soliloquies, we find they suppose they are holding a conversation, or carrying on a controversy, with another person.

4. The appetite is suspended in delirium. This is rarely the case in madness.

5. Scarcely any thing is remembered of what passes in delirium. Nearly every thing is remembered of what passes in the second or moderate grades of madness after a recovery from it.

The same objections occur to persons affected by delirium performing legal acts, or becoming criminal by perpetrating such as are illegal, that occur when they are affected by phrensy. The cases in which they may perform the one, and commit the other, are in the intervals of their delirium. These intervals accompany the remission and intermission of the fever of which delirium is a symptom; but the mind is sometimes restored for a short time to a sound state in a paroxysm of delirium by the following causes.

1. By an erect posture in bed or in an arm chair. This acts, by lessening the force and quantity of the blood sent to the brain, upon which delirium depends.

2. A stream of cool air, or cold water, or ice, applied to the head. Of this frequent instances occur in the practice of those physicians who have adopted those useful remedies for certain diseases of the brain.

3. The unexpected sight of a friend, or

4. The visit of a physician; hence the attendants upon delirious patients often tell their physicians how much worse they are during their absence from them, than while they are seated at their bed sides.

5. Terror has sometimes suddenly chased away a paroxysm of delirium.

6. There is often a sudden restoration of reason a few hours before death from one of the causes that produces it in madness.

7. There is sometimes a moderate degree of delirium upon a person just waking from sleep; which goes off as soon as the objects around him have time to revive their habitual associations in his mind.

8. We now and then see persons who appear to have recovered from their delirium, but who are still devoid of their consciousness with respect to the lapse of time, and the situation of their bodies.

9. Sir John Pringle takes notice of a suspension of reason accompanied with stupor or what is called coma, which is removed for a short time by rousing the patient by means of a noise, or by talking to him.

In the transient intervals of reason, that have been mentioned, the mind is often too much debilitated to go through all the particulars and formalities of a long will. However brief it may be, it should always be deemed valid, more especially if property be disposed of agreeably to former habits, or to the ties of consanguinity.

Let it not be supposed from any thing that has been said, that phrensy, madness, and delirium, are always marked by an exact line. They sometimes blend their causes and symptoms together. In such cases the judgment of a physician should be exercised upon all the circumstances of the disease; and his testimony as to legal sanity, or insanity should

be regulated by them. Where the symptoms of delirium and madness are united, the predominance of the former may be known by periodical sweats. These occur only in delirium, and never in madness. I am indebted for this remark to Sir John Pringle's observations upon the diseases of the British army.

As you will often be called upon to visit patients in those stages of disease in which it is common for them to make their wills, and in which legal aid cannot be obtained for that purpose, it may not be improper to add in this place a few remarks that may enable you to assist a dying patient in disposing of his property in a correct manner. Previously to my delivering these remarks, let me advise you never to suffer a patient to die who has a right, and is in a condition, to make a will, without informing his friends of his probable or approaching dissolution, and suggesting to them the propriety of his performing that act. We owe this duty to his family and to society. The suggestion to the patient should never come directly from a physician. He should at all times appear to him, as the minister of hope. By means of a contrary practice, sick people I believe have sometimes been hurried out of the world. The late Dr. Jebb of London reproached himself to the last days of his life with having been the cause of the death of a patient, by yielding to the importunities of his friends in advising him to make his will, immediately after he prescribed for his disease.

Whatever difference there may be in the laws relating to wills in the different states, the following

circumstances I believe are required by most of them, in order to render them valid.

1. That they should be subscribed by two or more witnesses.

2. The witnesses should be above fourteen years of age, and should not be the heirs of any part of the property bequeathed in the will.

3. A legacy bequeathed to an executor, who owes any thing to the estate of a testator, cancels the debt, unless the estate should afterwards appear to be insolvent.

4. If a man have a will by him, and have added to his real property after he has made his will, it will be necessary for him to add what is called a codicil to it, or to make a new one.

5. If the wife of a testator be pregnant, it will be necessary for him to make a special provision for his posthumous issue.

If, from the transient duration of a man's reason, or the appearance of a speedy termination of his disease in death, or, if from the want of the implements for writing, or of a person capable of drafting a will, or, if he should be unable to subscribe his name, or to make a substitute for it by a mark, he may dispose of his property, and name his executors, verbally. Care should be taken in this case that there should be three or four witnesses present; that they should all be perfectly disinterested; and that the bequests of the deceased should be committed to paper as soon as possible afterwards.

To enable you to preserve with perfect accuracy the state of mind with which a patient makes his will, it will be a good practice, where litigation is expected, to make a note of it immediately afterwards; for it may be months, or even years, before you may be called upon to testify to it in a court of law. We owe this to the superior credit which is given to our knowledge and testimony in all controversies upon this subject. So general and so exclusive is the respect paid to the opinions of physicians upon the sound and disposing state of a man's mind when he subscribes his will in Great Britain, that, even in one of their hospitals, Mr. Howard tells us a patient is never permitted to make a will unless permission for that purpose be obtained in writing from the physician or surgeon of the hospital.

I return from this digression to remark that all those states of mind which forbid persons disposing of their property, and exempt them from punishment for criminal acts, should preclude them from being witnesses in a court of justice. In addition to the deranged states of mind that have been mentioned, habitual drunkenness should be considered as an obstacle to the admission of testimony. Its general effects are to impair the memory, and to weaken the moral sense as far as it relates to veracity. It induces the latter, by the habits of concealing the manner of obtaining strong drink, or ascribing its inebriating effects to indisposition from other causes, or by denying an attachment to it. Conscience, when frequently stretched by these falsehoods, seldom con-

tracts to the measure of truth upon other subjects. It was for this reason, probably, that the testimony of a drunkard, according to Sir William Temple, was never admitted in the ancient courts of justice in the kingdom of Spain. Again, the memory is generally weakened by age. In this stage of life more credit should be given to the testimony which relates to early, than to recent, events. Lastly, under this head, knowledge in persons of all ages perishes, or only sleeps in the memory. In the latter case, facts are sometimes forgotten or denied, which a single word, or a sound, or the sight of an inanimate object, may, by means of association, revive in the mind in such a lively manner as to produce the highest degree of confidence in their reality, and even of correctness in all the circumstances that relate to them.

Having considered the different kinds of intellectual derangement with their reference to civil and criminal law, I proceed next to mention a disease of the mind which I shall call moral derangement; which discovers itself in the commission of certain crimes, but under circumstances that should not expose to the punishments usually connected with them.

By moral derangement I mean that state of the mind in which the passions act involuntarily through the instrumentality of the will, without any disease in the understanding. Upon the operations of the will there are two very opposite opinions: one, that it acts freely; the other, that it acts only from neces-

sity. I shall hereafter in our lectures upon the mind admit, however paradoxical it may sound, that both these opinions are alike true. Man we are told was created in the image of his Maker. Now this could not have been the case were there not some things mysterious and incomprehensible in the structure and functions of his mind, as well as his body.

The will is liable to two states of disease. It sometimes acts without the stimulus of motive in an involuntary manner; and it is sometimes incapable of action from the stimulus of the most powerful motives upon it. Strange as the comparison may appear, I have supposed, or rather I have observed, it to resemble a muscle in the two opposite states of convulsion, and palsy: acting in the former case in spite of the will; and in the latter, incapable of feeling its impulse. I shall take notice at present only of the effects of the former. In this convulsed state of the will, the understanding, I have said, is unimpaired; and all its operations are performed in the most regular manner. I was first struck with this disease in the will, in the year 1795, and described it in a letter to Dr. Priestley. It was in a patient whose habits in health were taciturn and reserved. In an attack of fever he spoke constantly, and communicated to his friends a minute history of his private affairs with great correctness, and added, while he was doing so, that he was conscious that he was acting in an improper manner, and contrary to his habits; but that he could not help it. But this disease much oftener discovers itself in an involuntary disposition, in per-

sons who are affected with it, to commit acts of violence upon themselves or others. Patients in the hydrophobia, with the perfect exercise of their reason, now and then lose the command of their wills, and sometimes advise their friends to avoid coming near them lest they should bite or otherwise injure them. In the year 1803, I found that this convulsion or insanity in the will had been taken notice of by Mr. Pinel, and illustrated by a striking instance of it. It is so pertinent to our subject that I shall read to you the translation of his account of it. "I will just" says the author, "cite one instance of the læsion of the will. It is in a maniac whose symptoms appear to be totally inexplicable upon the principles of Locke and Condillac. His insanity was periodical, and generally returned after an interval of several months. The first symptom of it was a sensation of great heat in the umbilical region, which was felt to ascend progressively to his chest, neck, and face. To this succeeded a flushed countenance, wildness of the eyes, and great distention of the veins and arteries of the head. No sooner was the brain itself invaded, than the patient was seized with an irresistible propensity to commit acts of barbarity and bloodshed. Thus actuated he felt, as he afterwards told me," says our author, "a contest terrible to his conscience, arise within him, between this dread propensity which it was not in his power to subdue, and the horror which the black crime of murder excited. The memory, the imagination, and the judgment, of this man were perfectly sound. He declared to me," adds

Mr. Pinel, "very solemnly during his confinement, that the murdering impulse, however unaccountable it might appear, was in no degree obedient to his will; and that it once sought to violate the nearest relationship he had in the world, (that was his wife) and bury in blood the tenderest sympathies of his soul. He frequently repeated these declarations during his lucid intervals; when he likewise avowed that he had conceived such a disgust to life, that he had several times attempted to put an end to it by suicide." "What motive," he would say, "can I have to murder the governor of this house who treats me with so much kindness? Nevertheless, in the moments of my fury, my propensity acknowledges no respect for his person; for I could then plunge my dagger into his bosom as soon as into that of any other man. It is to avoid the guilt of murdering my friend, that I am induced to attempt my own life."

Nearly similar to this singular case was that of a young man for which my advice was solicited in a letter from a gentleman of great respectability for talents and knowledge in a neighbouring state in the summer of the year 1808. "Permit me," says the gentleman, "to state to you the case of a young man nearly related to me, and to request your advice in it. It will present to you a phenomenon rarely to be met with in your profession. He is harassed with constant apprehensions that he will be irresistibly urged to put an end to his life. These apprehensions press upon him with such violence, that he is unable

to apply to any business. He has just notions of religion; nor is he affected with melancholy, nor with the least gloominess of mind; and he appears to enjoy good bodily health."

That the disease, I have just now described in the will, was wholly the effect of physical influence upon his brain, I infer from the remedies that cured it; which were bleeding, purging, and low diet. I have lately heard, with great pleasure, that he has never since had the least sign of a return of his disease.

But there are cases upon record in which this convulsive or involuntary action in the will has produced both murder and suicide. I shall mention two or three of them.

A respectable schoolmaster of the name of Reuse in Hamburgh, in the year 1804, murdered his wife and five children in the course of a single night, and afterwards attempted to destroy his own life. This man bore a good character, lived happily with his family, and retired to rest apparently in harmony with them all. He had just before been unsuccessful in a trifling lawsuit, which he feared would involve his family in distress. He expiated his disease, for it cannot be called murder, upon the rack; the wheel of which came down eighteen times upon his neck, arms, and limbs. "It was," says the writer of the account of his execution, "a shocking sight."

In the year 1804, a certain David Williams, at Milton in the state of New York, became weary of life and contemplated destroying himself by suicide; but changed his purpose, and with uncommon cir-

cumstances of cruelty, killed a little boy of the name of Ira Lane, who had never offended him, and whom probably he had never seen before. This man was condemned to die. His execution was, I believe, respited; and I am not sure whether he was not finally pardoned by the legislaturé of New York.

In the year 1806, the Utica paper tells us, a certain Sarah Helleck, of Westmoreland, in the state of New York, murdered her four children, and afterwards killed herself. No cause, says the paper, can be assigned for her unnatural and barbarous conduct. In the forenoon she visited her neighbours, and was apparently in good health and spirits.

One more instance, taken from the lectures of Dr. Gall, shall close this melancholy history of the fatal effects of insanity in the will. A certain Catharine Zigler murdered her child. She instantly confessed her crime, was tried, and acquitted, probably from a suspicion that she was somewhat deranged. She became pregnant soon afterwards, on purpose, as she said, that she might have another object upon which she might gratify her propensity to murder. She was delivered of a child, which she immediately destroyed. For this act she was dragged to a court of law, where she was condemned, and finally suffered the punishment of death.

In the course of the present season, I visited, in consultation with Dr. Physick, a lady in this city, equally admired for her amiable virtues and elegant accomplishments. In describing her disease, which

was chiefly seated in her nervous system, she said, "I am blessed with one of the best of husbands, and a family of promising children, whom I love most affectionately; and yet, in the paroxysms of my disease, and with the perfect exercise of my reason, I wish for an ax, that I might split open their heads, and lay them all dead at my feet." Had her will obeyed the impulse of her inclinations, in one of these paroxysms of moral derangement, the balance of public sympathy would have been so much in favour of her excellent and unoffending husband and children, that all her virtues and accomplishments,—her youth and beauty,—and even the high rank and worth of her family connexions,—would probably have been insufficient to save her, in common with two of the persons that have been mentioned, from expiating her disease by an ignominious death.

The following circumstances have been observed in persons who commit murder, or rather who take away life, under the influence of this morbid state of the will.

1. It is committed without provocation or malice, either of a sudden, or of a chronic, nature.
2. It is usually committed upon near relations, and friends; and often by persons of the most exemplary moral and religious characters.
3. It is sometimes committed upon a child or an idiot, in order to provoke death by the law; supposing it to be a less crime to kill innocent persons

for this purpose, than persons who might suffer from dying in an unprepared state; and preferring that mode of getting rid of life, to perishing by suicide.

4. It has been committed by parents upon their children, under the pressure of extreme poverty, in order to prevent their suffering from the same evil.

5. It is sometimes committed by persons under the influence of delusive opinions in religion.

6. Circumstances of greater and more deliberate cruelty attend it, than common murders.

7. It is never accompanied by robbery.

8. It is sometimes followed by suicide, or by attempts to maim their own bodies; and

9. It is never, or rarely, succeeded by an attempt to escape; but, on the contrary, the persons who perpetrate it, generally confess what they have done; and sometimes not only surrender themselves up to justice, but demand its utmost rigor.

Instances of life being taken away, under all the circumstances that I have mentioned, are to be met with in Dr. Creighton's inquiry into the nature and origin of mental derangement, extracted from a curious work, published in Germany, intitled the "Psychological Magazine."

You will readily perceive a tincture of intellectual, with moral, derangement, in several of the acts that have been mentioned. However correct the conversation, or conduct of such persons may be upon other subjects, they should be considered as

labouring under a form of insanity much worse than that which is seated in the understanding; and all the light and knowledge of our science should be employed to oppose the usual punishment inflicted upon them. What should we think of a surgeon, were we to see him cut off an arm or a leg, because in its convulsive motions, it injured a toilet, or over-set a teatable? It is equally absurd, and far more cruel, to inflict the punishment of death upon a fellow creature, for taking away a life under the influence of a deranged state of the will.

A conduct equally humane and just should be observed towards the bodies, the families, and memories, of persons who destroy themselves, while they are deprived of their free agency, and subject to a morbid impulse in their wills.

I have thus delivered the history of derangement in the will, when its involuntary exercises tend only to the taking away of life. But it sometimes discovers itself in another way: that is, in acts of theft. We now and then read and hear of persons, who cannot go into a house without feeling an inclination to take away something that is not their own, and, when an opportunity of secrecy offers, of yielding to it. Property, when taken under the influence of this involuntary act of the will, (for I will not call it theft,) is generally accompanied with the following circumstances.

1. It is taken by persons in easy circumstances, and sometimes in the higher classes of society. A

young nobleman, and the sister of the lord mayor of Edinburgh, who had been a popular preacher among the Friends, were universally spoken of as the subjects of this malady, while I was a student of medicine in the college of Edinburgh.

2. The matters taken are of but little value, and particularly to the persons that take them. The young nobleman, just now mentioned, seldom took any thing from the houses in which he visited, but a penknife, a pair of scissars, or a lady's glove; and the sister of the lord mayor of Edinburgh would now and then take a silver spoon; but the pain of her disease was relieved, if she could only convey silyly into her pocket a piece of bread.

3. No measures are taken afterwards to derive any profit from the matters that are taken, or even to conceal them. They are sometimes given away, or shown publicly as the trophies of sleight of hand.

That these acts are committed under the influence of bodily indisposition, I infer, from its having been induced by a temporary change in the state of the bloodvessels and nerves. Dr. Harle, formerly an eminent physician at Newcastle, in England, relates an instance of a woman who always felt an inclination to steal during the whole course of her pregnancy, and at no other time. Its commencement was, with her, a certain sign of conception.

Let it not be supposed, that the safety or order of society will be endangered by extending the principles of pathology, I have delivered, to our penal

code. The reverse of this will be the happy fruits of their adoption; for while a jury, under the influence of humane principles, or of just notions of the precepts of the gospel, refuse to unite in a sanguinary verdict, they would rejoice in having a good excuse to consign the unhappy offender to the confinement of a hospital, and the discipline of medicine. Nor let it be supposed, that I wish to include in this new class of patients, the habitual drunkard. Our laws show no tenderness to persons who commit crimes while affected by intellectual derangement from a temporary fit of intoxication. Persons who destroy their free agency by strong drink should be treated in the same manner. Perhaps an allowance should be made for an offence committed in the first fit of drunkenness. A man may be unexpectedly and innocently robbed of his reason, by his ignorance of the strength, or by an improper mixture, of the liquors that are offered to him, or by the importunity or art of a friend, to try the strength of his head, whose sober habits would have revolted at the prospect of his degraded situation. The madness in this case is involuntary, and should palliate, if not excuse, a criminal act, committed while he was affected by it.

Hitherto I have spoken of the effects of the passions, acting from necessity, through the medium of the will, in the crimes of murder and theft. It remains only that I mention another form of moral derangement, which is seated in the domestic af-

fections; and which is somewhat connected with the branch of medical jurisprudence now under consideration. This mental disease sometimes discovers itself in the hostility of parents to their children, or in a want of affection for them, without any just cause. The life of the poet Savage furnishes an instance of the former. Of the latter, I have known several instances: one of which was in a respectable citizen of Philadelphia, lately deceased; who, while under the influence of a paroxysm of low spirits, said to me with great distress, that he had lost all affection for his wife and children; and that he would not rise from his chair to save them from being butchered before his eyes. The domestic affections, in both these cases, are in a morbid state, and insensible to the impulse of natural motives. Should a man, in either of these states of mind, bequeath the whole, or the greatest part, of his estate, to a church, or any other public institution, or to a stranger, to the injury of a family of children who had never offended him, and whose necessities, or rank in life, as well as their blood, intitled them to be his heirs, he should be considered as morally deranged; and his will should be set aside as promptly as if he had disposed of his estate in a paroxysm of intellectual derangement. The laws, and the voice of nature, in such a case, should silence a volume of reports in favour of a contrary practice.

I have thus, gentlemen, given you a short and imperfect specimen of the nature of medical juris-

prudence, and of its importance to society. The parts of it which I have selected for this purpose, are new and difficult; nor should I have ventured upon them, did I not know, that "the path, which the eye of the vulture hath not seen," is sometimes accidentally discovered by animals of more limited vision. But if this be not the case in the present instance, I will console myself with a hope that I have at least opened a channel through which you will cause many streams of knowledge to flow for the benefit of your fellow citizens.

To animate you to apply to the study of all the subjects enumerated in the introduction to our lecture, I beg you would recollect the extent of the services you will thereby be enabled to render to individuals and the public: fraud and violence may be detected and punished: unmerited infamy, and death, may be prevented: the widow and the orphan may be saved from ruin: virgin purity and innocence may be vindicated: conjugal harmony and happiness may be restored: unjust and oppressive demands upon the services of your fellow citizens may be obviated; and the sources of public misery in epidemic diseases may be removed, by your testimony in a court of justice. Nor is this all. By cultivating the science I am now recommending, you may extend its benefits, beyond our courts of justice, to the legislatures of our country, and thereby become the means of obtaining laws founded upon modern discoveries and opinions in

phrenology, which shall place testimony, as far as it relates to the morbid states of the different faculties of the mind, upon such a basis, as to relieve judges and jurors from the painful necessity of acting in a discretionary manner.

There is but one objection to the increase of this species of knowledge: and that is, conviction for several offences, which are at present punished by death, will be rendered more certain and more general by it. But there is a sure and infallible method of obviating this objection: and that is, to abolish the punishment of death in all cases whatever; even for the crime of deliberate murder itself. Yes. I say again, for the crime of deliberate murder itself. It is to be lamented, that the most palpable contradictions exist in the principles and conduct of mankind upon this subject. We bestow much study and great labour in restoring the wandering reason of our fellow creatures; but we neglect their erring hearts. We erect splendid and commodious buildings to confine persons, whom intellectual derangement has rendered dangerous to society, and we employ our skill and humanity to relieve them; but with an unmerciful impatience, we consign persons, whom moral derangement has rendered mischievous, to the exterminating ax and halter.* We believe

* Several of the above expressions, upon the cruelty of capital punishments, are taken from one of Mr. Fawcett's sermons.

that no man possesses a property in his own life; and yet we convey that property to our governments. Above all, we profess to be christians; and yet we continue to enforce the law for shedding human blood, which was delivered upon Mount Ararat, and many of the subsequent laws of the Jewish legislator for the same purpose, after their total repeal upon Mount Calvary.* I shall make no apology for this seeming departure from the subject of my lecture. The virtues, like the sciences, are nearly related to each other. In vain, therefore, shall we

* Many parts of the ceremonial law were types of the benefits which were to flow from the death of the Messiah. One of these types was—fugitives to the cities of refuge, for manslaughter, were restored to their families and society, after the death of the high priest. This jail delivery or pardon, it is true, did not extend to the crime of deliberate murder; and for this obvious reason, the ceremonial “law made nothing perfect.” “It was a shadow only of good things to come.” The great and exclusive honour of making every thing perfect, was reserved for the gospel. By the death of the high priest of the human race, the power over human life was abrogated. While the blood of Abel, and all the innocent blood that was shed under the law, called for vengeance, the blood of the cross, “which speaketh better things,” calls only for the repentance and remission of the sin of the murderer. “The son of man came into the world, not to destroy men’s lives, but to save them.” This declaration, as appears from the history of the events which precede it, extends only to the life of the body. The prayer of the new legislator of the world upon his cross, for the forgiveness of his murderers, is a commentary upon that passage of scripture, and upon the whole tenor and spirit of the gospel.

expect to hear the whole truth from witnesses in our courts of law, while its penalties are opposed by the dictates of humanity and justice. By substituting expiatory confinement and labour, and the power of medicine, according to circumstances, for capital punishments; and by rendering all other punishments less severe, and more certain, we shall restore the original harmony between the virtues that have been mentioned, and thereby add greatly to the reputation of our courts, and to the order and happiness of society.

TWO LECTURES

UPON

**THE PLEASURES OF THE SENSES AND OF THE
MIND; WITH AN INQUIRY INTO THEIR PROXI-
MATE CAUSE.**

DELIVERED IN THE

UNIVERSITY OF PENNSYLVANIA.

LECTURE I.

ON THE PLEASURES OF THE SENSES.

GENTLEMEN,

HAVING described the offices of the senses and of the faculties of the mind, as far as I was able, I shall now mention the various pleasures we derive from each of them; but it will be necessary first to remark, that since the loss of primeval innocence, pain appears to be the natural state of man. The first impressions upon the body of a new born infant, its mother's milk excepted, I have said formerly, are always painful, hence they generally cry as soon as they come into the world. Even the impressions of musical tones give them pain, according to Dr. Hartley, the first time they hear them. I took notice of this fact, in the lectures upon animal life, when I ascribed the red colour of the skin of new born infants, and the sleepiness which takes place in them for several days after their birth, to the stimulus of the air acting upon their bodies. In what manner the painful impressions of the atmosphere become, after a while, pleasurable, has been hinted at in our account of the laws of the nervous system. It shall be resumed and explained more fully, when we come to inquire into the proximate cause of pleasure; at which time I hope to prove, notwithstanding

ing pain is our natural state, that there is a great predominance of pleasure over pain in the course of our lives. In this respect pleasure resembles animal life; which, from the numerous causes that induce it, greatly predominates over sickness and death; which are, equally with pain, the natural states of man.

In the further prosecution of this subject, I shall

I. Enumerate the pleasures of the senses.

II. I shall inquire into their proximate cause; or, in other words, into the changes which are produced in the nerves by the sensation of pleasure.

The subject, gentlemen, is a practical one; for pleasure is not only one of the ingredients of health; but its deficiency and its excess are frequent causes of disease. Nor is this all. Many of the pleasures of the senses and the mind are important articles of the *materia medica*; and when their number, degrees, and manner of operation, are understood, they will furnish magazines of remedies for many diseases. Most of the cures said to be performed by nature, or by feeble remedies, in chronic diseases, I believe are performed only by the accidental or artificial pleasures of the body or the mind. The education of a physician is imperfect, who is not minutely acquainted with them, and who does not know when and how to apply them in the practice of medicine.

In the course of my remarks upon this subject, I shall consider pleasure as a unit; in which I shall include all those sensations that are known by the

names of agreeable, gay, delightful, joyful, and rapturous. They are all the effects of impressions acting with different degrees of force, and upon different parts of the body.

I. I shall begin, agreeably to our order, by enumerating the pleasures of the senses: and of these, the pleasures of TOUCH shall command our first attention. They are

1. That degree of sensation, in which perfect health, or a regular and natural excitement of the whole system, consists. It is supposed to arise from the secretions being performed in an easy and natural manner. The Germans call it, very properly, *self-feeling*. I have said, the absence of this natural and healthy degree of sensation is accompanied with debility and pain. The truth of this remark is confirmed by the general use of tobacco, opium, stramonium, and ardent spirits. They are all resorted to in order to elevate the system to the point of natural sensation, or to a healthy and pleasant grade of excitement. They were first adopted to obviate debility and pain from morbid causes; but they are now generally used to remove the consequences of their own stimulus upon the body. Dr. Johnson ascribes the general use of these artificial means of producing natural sensation, to the predominance of misery over happiness in the world; but I cannot believe this to be the case; for where one person makes use of those articles to remove unpleasant sensations from misery, thousands use them in the

first instance from imitation. They are continued afterwards from habit.

2. The commerce of the sexes. This pleasure is subdivided into three grades. The first of them is that which is derived from the propagation of the species. The second is that which is received and imparted by the lips in kissing. A third is derived from the contact of the other parts of the body, particularly of the hands: hence in courtship they form the first point of contact between lovers. Our countryman, Mr. West, has happily illustrated this third grade of pleasure from the intercourse of the sexes, by his beautiful picture of Angelica and Medoro, taken from the history of Orlando Furioso. He represents them as seated upon a green bank, by the side of a stream of water, under the shade of a large tree. In this situation Medoro directs with his right hand the eyes of Angelica to her name, cut years before, in the bark of the tree which shaded them; with his left hand he grasps one of her hands, and at the same time gently presses her forehead, her knees, and one of her feet, with the same parts of his own body. Sir Joshua Reynolds, upon first perceiving this delicate and natural expression of love, declared he would have given a thousand guineas to have been the author of it.

3. The action of a certain temperature of the air upon the surface of the body. I cannot describe the exact degree of this temperature, as it affects the body differently in different stages of life. In some climates this pleasure is felt more than in others. In

Italy it is felt for several months in the year; hence the rapture with which poets and travellers speak of the weather in that country. It is felt occasionally in the spring months, in England. It is a constant source of pleasure in the West Indies, when the heat of the weather is of a moderate degree. The temperature of the air in the middle states of America seldom remains long, in any season, at this point of pleasure. We sometimes feel it in the month of June, and now and then in the autumnal and winter months. That the pleasure I have described is derived from the air, and has no mixture of moral or intellectual pleasure with it, I infer from its producing the same effect, but in a much higher degree, in other animals. The colt, the calf, and the lamb, all discover, by their gambols, the wonderful influence of the air, at certain seasons, upon the sentient extremities of their nerves. Connected with the agreeable impressions of a certain temperature of the air upon the external surface of the body, is the pleasure derived from the action of an extra portion of oxygen gas, and of the nitrous oxyd, upon the lungs; the surface of which, you will recollect, is a part of the widely extended sense of touch.

4. The warm bath. This was used originally as a medicine in ancient Rome; but the pleasure, which accompanied it, soon converted it into an article of luxury: hence every house was furnished with the means of enjoying it. The baths were in many instances constructed of silver; and to increase the

pleasure, warm oil was sometimes used in them, instead of warm water. The warm bath contributed much to smooth the descent down the hill of life, of the late Dr. Franklin. He often spent hours in it, and part of that time in a state of easy sleep.

5. Certain exercises. These are, walking after long rest, riding an easy-going horse, riding in an easy carriage over smooth roads, sailing on the water, or in the air, swinging, dancing, and the chase. The last of these exercises is of a peculiar nature. It is violent in its degree, for men generally ride at a full gallop in it; it is enjoyed in cold weather, and in the coldest part of the day, that is in the morning, and is attended with many risks of limbs and life; and yet I know of no exercise from which some men appear to derive more pleasure. Perhaps in this case it is derived from other causes. Is it from the echo of the horn, and yells of the hounds, reflected upon the ear from hills and mountains? Or is it from competition in running, or leaping fences or ditches? It certainly cannot arise from sharing with hounds in a victory over the poor and contemptible animal which is the common object of the chase. The Indians talk of a species of joy, which they call the "joy of fear," that is, the joy which is felt after surviving a bloody victory or defeat. Perhaps the pleasure of a fox chase may arise, like the joy of fear, from the continued reflection of escaping with whole bones from the danger to which that species of exercise, above all others, exposes the body.

The pleasure of sailing in the air in a balloon, Mr. Blanchard informed me, was very great. It quickened his pulse four strokes in a minute. The time may come, when this mode of sailing will be employed, in certain diseases of moderate action, with as much safety as sailing upon the water, and with much more advantage.

Motion or exercise is most essential to pleasure in childhood. They not only derive pleasure from it; but they are uneasy or fretful without it.

6. The operation of certain medicines or liquors upon the body. It is true, they do not act upon the nerves which terminate in the skin; but they operate on the whole nervous system, through the instrumentality of the nerves which terminate in the alimentary canal; and this part of the body I have always considered as part of the widely extended region of touch. The medicines and liquors, which produce the sensation of pleasure in the manner that has been mentioned, are opium, stramonium, tea, coffee, wine, and ardent spirits. The effects of opium are more remarkable in inducing pleasure, than any of the others. I have heard several persons who were under the operation of it, express their sensations of pleasure by declaring, "that they felt as if they were in heaven."

7. Sudden relief from extreme pain. We often observe this, after a fit of the colic; but most frequently in women after parturition. The wife of Dr. Darwin, who often suffered exquisitely from a painful disease, used to say, her pleasure, in the inter-

vals of the paroxysms of her disease, far exceeded her pain. A gentleman in this city, who had been relieved from the pain of a stone by the operation employed for that purpose, declared soon afterwards to his surgeon, that his days and nights were too short for his enjoyments.

To this head belongs the pleasure which the body experiences in a sudden freedom from confinement or restraint. This may be seen every day, by attending to the rapture with which boys rush out of school, after being confined for several hours to one posture in a close room. The nature of this pleasure may easily be conceived, from the following remark, extracted from Sir William Hamilton's letters from Italy. "Terrible as the eruption of Mount Vesuvius is to the inhabitants in its appearance, there are two classes of people who always witness it with pleasure: these are nuns and school-boys, who are permitted to leave their places of confinement, in order to avoid being injured by the lava of the mountain."

8. Certain soft and smooth substances applied to the skin, such as silk, velvet, fur, and eider down. The pleasure we derive from laying down upon a feather bed, after great fatigue, belongs to this head. It is sometimes so intense, as to bring on fainting and convulsions.

9. There are certain titulations, different in different people, excited in different parts of the body, which afford a certain low degree of pleasure. Combing, and looking the head, as it is called,

is a pleasurable sensation of this kind. It is said by Anderson, in his life of the poet Phillips, that he often retired from company to enjoy the pleasure of having his hair combed. The same thing is said of Buffon. I once knew a lady who was so much attached to the pleasure of having her head looked, that she often employed one of her maids two or three hours in a day for that purpose. Of the same nature is the agreeable sensation which a gentleman of this city always feels upon tying up his arm previously to the opening a vein.

10. Rest after labour, a cool evening breeze succeeding a hot day, and a moderate degree of heat after being exposed to cold, all impart more or less pleasure to the sense of touch.

11. There is a sensation connected with the sense of touch, which is of an hermaphrodite nature; and that is the sensation of tickling. It partakes of pain and pleasure. Riding in a sleigh is a sensation of a similar nature. It is composed of pain from cold, and pleasure from motion.

12. There is a pleasure that belongs to the sense of touch, which is derived from the abstraction of light and sound. It consists in darkness and silence. This pleasure is of a relative nature. It exists only in those cases in which there has been some excess in the excitement of the senses of seeing and hearing.

13. The intermediate state of the body between sleeping and waking. This pleasure is attached chiefly to luxury and independence.

14. The relief which is given to itching by means of scratching. King James I. of England thought so highly of this pleasure that he used to say it should be enjoyed only by crowned heads.

15. To the pleasurable sensations which have been mentioned I shall add one more, which I am sure you will hear with surprise; and that is, the bodily pleasure which sometimes attends dying. It is true the passage out of life is generally attended with great pain; but I have witnessed the extinction of life in persons who have declared, not only that they felt no pain; but who have discovered evident marks of pleasure. I am not singular in this observation. Adrian long ago spoke of "the pain and bliss of dying." The late Dr. William Hunter in his last moments made use of the following remarkable expressions: "I wish I had a pen and ink, and were able to write, that I might record how easy, and how pleasant a thing it is to die." And the late general Butler, who fell on the 4th of November 1791, in general St. Clair's defeat, said to an officer from whom I received the information that it was not so hard a thing to die as he expected; and that he felt as if he were falling asleep: a sensation which we all know to be agreeable. I have suspected that the placid, and even smiling countenances, which we sometimes observe in dead persons, may be produced by the last sensation of the body being a pleasant one; just as the distorted or dejected countenances of other dead persons seems to arise from the last sensations of the body being painful.

Thus far have I considered the pleasure of touch, as it affects the whole external surface of the body. It remains now that I speak of the pleasure of touch as it is confined to the fingers. This is limited chiefly to soft and smooth substances. The late Judge Hopkinson informed me, that he once determined to compose a scale of pleasurable sensations by the fingers analogous to a musical scale. The objects which were to excite these sensations were to be matters of different degrees of softness and smoothness, so as to produce, by different mixtures of them, something like musical tones. The thought was an ingenious one, and probably may hereafter be carried into execution. To all the soft and smooth substances formerly mentioned, I shall add but one more; which when felt by the fingers yields a pleasure superior to any of them: and that is the tender and delicate skin of a child about eight or ten months old.

Motion is in some degree essential to the pleasure which is produced by the contact of the fingers with the objects which excite it. Hence the pleasure of touching any object is increased by gently moving the hand backwards and forwards upon it.

On the Pleasures of Taste.

Had the preservation of life by eating and drinking, depended upon the exercise of the reason of man, he would often be exposed to diseases and death from the neglect of them, from business, forgetfulness, or low spirits; but, happily, the exercises of eating and drinking are connected with so much

pleasure that few people are disposed to neglect them: on the contrary, many persons place their principal enjoyments in the gratifications of the sense of taste. The pleasures of this sense are of a relative nature, and are greatly varied by two things: hunger, and habit. The grossest aliment excites the highest degree of this pleasure when the appetite is whetted by hunger; and habit will render substances, at first disagreeable, extremely grateful when applied to the tongue, such as the hautgout of Scotland, the olla podrida of Spain, and the dishes perfumed with garlic and assafœtida in France. Even that loathsome weed, tobacco, produces a most exquisite pleasure from habit when applied to the tongue. The simple objects of taste, which often afford pleasure, are very numerous. Nature teems with them in every part of the world. It would fill a volume only to name them. But the pleasures of this sense are not derived simply from the productions of nature. The art of man has discovered a thousand combinations of different substances, which increase the pleasure of eating and drinking. Nor is this all. He has increased the pleasures of taste, by the addition of numerous condiments, such as salt, pepper, vinegar, and pickles, to his aliment; all of which act by exciting the papillæ of the tongue to more acute and exquisite sensation. The rhinoceros, we are told, produces the same increase of sensibility and excitement in the papillæ of his tongue, by biting the twigs of thorn bushes while he is eating. It is a common thing to inveigh against the use of condiments with

our food; but when they are taken in moderate quantities, they not only render our aliments more pleasant, but they render a less quantity of them necessary to satisfy the appetite. Great feeders generally live upon simple food.

The intensity of the pleasure of taste is so great in some people, as to lead to immense sacrifices of time, property, and health, in order to gratify it. A gentleman in London, in reduced circumstances, received a guinea in charity from an old friend. He went immediately to Covent Garden, and gave eighteen shillings and sixpence for a cucumber: with the remaining two shillings and sixpence he bought a beefsteak; and upon the two, he made a luxurious dinner, forgetful of the demands of his appetite on the ensuing day. Even the sense of seeing has been offered in exchange for the pleasures of taste. Dr. Blackmore, in his treatise upon the gout, mentions an instance of a gentleman who had a tedious inflammation of his eyes kept up by intemperate eating. His physician at length told him, he must either subdue his appetite, or be content to lose his eyesight. "I have seen enough," said he, "Doctor; but I have not eaten enough. I will eat on."

The pleasure of the sense of taste is intimately connected with a sound and healthy state of the sense of smelling. A disease in the nose, and even a common cold, have often destroyed or suspended it.

To the continuance of the pleasure we derive from this sense, variety is indispensably necessary. The richest viands, even venison, turtle, and salmon, so

delicious to the taste of an epicure, become not only insipid, but nauseous, if eaten daily for two or three weeks. Aliments of but little stimulus seldom pall the appetite. Hence the pleasure with which we eat beef, mutton, and bread, all the days of our lives. They are to the tongue, what green is to the eyes. It belongs to the pleasure of the sense of taste to survive the pleasures of all the other senses. This is obvious in old people; in whom there is generally an increase of appetite, and a preference of food of the most cordial nature. The latter was exemplified in the aged patriarch Jacob in his charge to his son, to make his "venison savoury." We observe the same thing in common life. A reason was given for it in the lectures upon animal life.

I have suspected that aliments have the same relation to each other that has been observed in sounds; and that something like harmony or discord is produced in our food, according as different substances are mixed together upon the tongue in a greater or less degree of the relation they bear to each other. A full account of my opinions upon this subject may be seen in the first volume of my medical inquiries. I shall only add to what I have there published, that I think it highly probable there are many pleasures of taste yet to be discovered from the application of the principles of heat and mixture as unfolded by chemistry, and of sensation as unfolded by physiology, to the preparation of aliments. These discoveries are probably reserved for a time when men shall receive the pleasures of the table with uniform

gratitude, and in no instance profane them by a mixture with indelicate toasts, bacchanalian songs, or indelicate conversation.

Nearly all the remarks that have been made upon the aliments are applicable to drinks as the objects of taste. Fermented liquors, like condiments, reduce the quantity of food necessary to satisfy the appetite. This has been inferred from those persons being generally great feeders who drink water exclusively with their meals.

I have before hinted, in entering upon the subject of the pleasures of the senses, that many valuable articles of the *materia medica* may be derived from them. We often see diseases suddenly cured by indulging the longings, as they are called, of patients, for cheese, mush, a beefsteak, milk, beer, cider, and cold water. The cure in these cases is seldom performed by any thing specifically medicinal in those articles, but chiefly by the new and strong action given to the whole system, by the exquisite pleasure which is excited by them upon the organ of taste.

Of the Pleasure of Smelling.

Every region of the world, every hill and vale, and every shore, is tributary of pleasure to this sense. There appears to be a scale in odours with respect to the pleasures which they excite in the organ of smelling. The rose appears to be at the head of this scale. The pink, next; the jonquil, the jessamine, the tuberosa, the honeysuckle, and the sweet briar, all gradually descend from it. Perhaps the sweetscented

shrub of South Carolina ought to be placed next to the rose. Its odor is a compound of the odors of the strawberry and the pine apple. It is remarkable, fragrant odors are much increased in their pleasant impressions, by previously smelling disagreeable or fetid substances.

The pleasure derived from odors is further much increased by mixture. There can be but little doubt of the relation of these odors to each other, so as to produce from different mixtures greater or less degrees of harmony analogous to the vibration of musical sounds. There is certainly something like bass in the smell of the magnolia and the lilac. The rose and the pink resemble tenor; and the jonquil, the minionet and wall flower are striking analogies of the softness and delicacy of treble tones. The fragrance of flowers is much increased by the dew; for which reason they impart the most pleasure in the mornings and evenings.

It would seem as if the Author of our being had connected even this humble pleasure with certain degrees of industry and reason: hence we find the fragrance of every flower greatly increased by being transplanted and cultivated in a garden. They lose at the same time a proportionable degree of the pleasure which they afford the eye by the variety and brilliancy of their colours.

The odor of flowers and of certain vegetables is not only pleasant, but medicinal, from the stimulus it imparts to the whole system through the medium of the sense of smelling. Country air owes one of its beneficial effects on invalids to this cause.

In speaking of the moral faculties formerly, I said that they were liable to be perverted; and that this was no more extraordinary than the perversion of a sense. I mentioned the perversion of the sense of taste by a relish for tobacco. The sense of smelling is likewise liable to perversion. We see it in the artificial pleasure which some people derive from the fetor of civet, musk, assafœtida, and even of the snuff of a candle, who, notwithstanding, will deny that we have a native sense of pleasant odors. It is as much proved by its perverted, as by its sound state. The same remark applies to the moral faculties.

Where shall I find language to describe all the
Pleasures of the Eye?

Light, colour, figure, motion, height, distance, and magnitude, all combine to pour an ocean of pleasure upon this sense. I shall make a few remarks upon each of them.

1. To estimate the pleasures of light properly, it will be necessary to read that elegant passage in Milton, in which he describes the want of sight, to perceive it. Different degrees of light afford pleasure in different degrees. There are times in which the delicate light of the moon broken into shadows, is more pleasing than the light of the sun. The eclipse of the sun on the 16th of June 1806 excited pleasure every where. The temperature of the air was suddenly reduced four degrees; and the mercury in the barometer ascended to an unusual height

during the eclipse. Both perhaps cooperated with the diminution of light, to produce this pleasure.

2. Colour affords pleasure to the eye from many different sources. Blue in the sky, green upon the surface of the earth, and the different shades of green in the fruit trees of the spring, and of green and red in the foliage of the forest trees in the autumn, are all alike delightful. In addition to the three colours that have been named, the orange, the yellow, the indigo, and the violet, single and combined in flowers, fruits, and in the plumage of birds into a thousand different tints, all afford more or less pleasure to the eye. In the human face a mixture of red and white is always pleasing. The yellow and the gray inclining to a white afford the highest pleasure in the metals; hence the preference which is given to gold and silver above all the other metals. This preference I know is ascribed to habit and an association of an idea of their value; but this is not the case; for were they as plenty and as cheap as stones, they would still delight the eye. There is a similar pleasure in viewing the colours of all the precious stones. A relish for the colours of both is as much born with us, as a relish for the taste of sugar, or the smell of a rose. This is so much the case, that if an eagle, a dollar, and a piece of copper of the same size and stamp, should be offered to an Indian, he would uniformly prefer the gold and silver to the copper coin. To unfold the final cause of the pleasure we enjoy in viewing the colours of gold, silver, and of the precious stones would open a field

of speculation that would lead us aside from our present subject.

Colours like sounds are certainly related to each other. The Author of nature has furnished us with a striking proof of this, in the rainbow, and in many of the works of creation, both vegetable and animal. Dresses also, and pictures, with respect to colour, please or offend the eye, according as this relation of colours to each other is preserved or destroyed.

3. There is a certain figure which is calculated to give pleasure to the eye. Hogarth places it in a curved line, which he calls the line of beauty. This line occurs oftener in the human figure than in any other animal; for which reason man is considered the most beautiful creature upon the face of the earth. It is in viewing a beautiful human figure, whether male or female, that the "eye is never satisfied." Even the images of it upon canvass, and in marble, are delightful. The picture of Queen Mary of Scotland, and the statue of Venus of Medicis, have often brought travellers back when about to leave them half a dozen times, and sometimes chained them for hours at their feet. The next animal to man, in beauty, is the horse. All the objects of sight afford pleasure to the eye, as far as figure is concerned, in proportion as they approach or recede from the line of beauty. Rivers, mountains, and trees, all exhibit more or less of it. The works of art please the eye according as this line is imitated; hence we view a rotunda, a pavilion, and a steeple, with so

much more pleasure than we view a dwelling house, in which nothing but acute angles strike the eye.

4. We derive great pleasure from viewing motion in objects. The nodding forest, the waving cornfield, and the flowing stream of water, all afford a most delightful sensation to the eye. The same objects, when they stand still, are viewed without pleasure, and often with disgust. Motions to be pleasing should be gentle; and they afford most pleasure when they are in the line of beauty. Milton understood the first of these remarks; hence he describes the angel who visits our first parents in the garden “as slow moving, without step.” We see the latter exemplified in those motions of the body which are called elegant and graceful, particularly in a country dance; all the motions of which are in the line of beauty. One reason why we delight so much in viewing the antic tricks of children is, because all their motions are in exact unison with that line. They cease to be graceful and pleasing as they advance in life, from timidity, or from a bad education in what Sir Joshua Reynolds calls “the school of deformity.”

5. Height, distance and magnitude are so often united in the works of nature and art, that I shall connect them together as a fifth source of pleasure to the eye. The labour and expense with which travellers climb the tops of mountains, and visit the stupendous ruins of ancient temples and palaces in distant and inhospitable countries, prove that this pleasure of the eye has very peculiar charms. A lady who lately ascended to the summit of Mont

Blanc in Switzerland, from whence she grasped at one view a prospect of fifty or sixty miles, covered with hills rising over hills, villages, farms, fields, and rivers, was so much transported with it that she stood speechless and motionless for near an hour; for extravagant emotions of pleasure, like extravagant grief, always produce stillness and silence. Brydone speaks in raptures of the blaze which issued from mount *Ætna* in the night; and which covered the Mediterranean sea for near an hundred miles with its light. Spalanzani, in his travels, describes a prospect from the same burning mountain in equally glowing language. Mr. Bruce speaks in high terms of the pleasure he derived from viewing the cataract of the Nile, which was forty feet in height, and half a mile in breadth. "It was," says he, "a most magnificent sight, such as ages could not deface or obliterate from my mind. It struck me with a kind of stupor, and a total oblivion of where I was, and of every other sublunary concern. My reflection was suspended; and while in sight of the fall, I think I was under a temporary alienation of mind. It seemed to me as if the foundations of the great deep were opened, and the dissolution of the world again begun by the agency of water."* The queen of Sheba's spirit

* Mr. Wilson in his *Foresters*, published in the *Port Folio* for March 1810, describes his own emotions and those of his comrades upon their coming in sight of the falls of Niagara in several elegant poetical lines that accord with the feelings of Mr. Bruce. In addition to astonishment, the sight produced a sentiment of devotion.

died within her of a sudden paroxysm of pleasure after she beheld the magnificent buildings of Solomon. Height alone without magnitude is a source of great pleasure to the eye. Who has ever viewed the ascent of the eagle in the air without delight? The balloon derives its allurements to gaping cities and nations, from the pleasure which is connected with seeing objects at a distance in the upper regions of the air. The combination of colour and motion with magnitude adds greatly to the pleasure we derive from seeing; hence a large cloud tinged by the rays of the setting sun, and the ocean agitated by a storm, and viewed from the land, are two of the most delightful objects that can be surveyed by the eye.

6. Contrast is a source of pleasure to the eye. Hills and dales, rocks and streams of water, gravel walks in a garden in the midst of a wilderness, fruitful fields and plains of sand, and palaces and cottages viewed at the same time, are a part of the rural pleasures which belong to this head. The smile of melancholy, and the union of a brilliant imagination with a solid understanding, owe their peculiar charms entirely to contrast. It is to the same cause we are to ascribe the exquisite pleasure which is derived from painting and statuary in Italy and France. The subjects of each of them are taken from nature; and when faithfully executed, they form a delightful contrast to the uniformity which art has introduced into the human countenance and figure in both those countries. It is from the same cause likewise that the sight of young children is always

attended with pleasure. Their smiling and innocent looks relieve the eye from its familiarity with the solicitude, or the unhappy and guilty passions, which so generally discover themselves in the faces of persons in adult life. It is for this reason that wise and good men often resort to the nursery to forget for a while the pressure of study, business, vexation, and care. Luther sought relief from low spirits, and Sir William Temple, relaxation from the fatigue of study, from this delightful source of pleasure. Dr. Priestley was so deeply impressed with the power of children to impart pleasure by their looks and gestures, that he said to a person, who asserted in a large company that our Saviour never smiled, "It cannot be true. He must have smiled when the little children were brought to him to receive his blessing."

The pleasures of this sense, like those of the senses that have been mentioned, are of a relative nature. Mr. Nimsewitch, aid-de-camp to General Kosciusko, informed me that after being confined two years in a prison at St. Petersburg, the sight of a single green leaf gave him a degree of pleasure which he never before experienced from the finest rural prospect. Mr. Gray, the celebrated English poet, has described how much the pleasure of this sense is heightened by relative circumstances, in the following lines :

" See the wretch, that long has tost,

" On the thorny bed of pain,

" At length repair his vigor lost,

" And breathe, and walk again.

" The meanest flowret of the vale,
" The simplest note that swells the gale,
" The common sun, the air, the skies,
" To *him*, are opening paradise."

There is a pleasure which is derived from impressions made upon all the senses, which have been enumerated, nearly at one time; and that is the pleasure which a child enjoys in sucking. Its smell, taste, hunger, and thirst, are all gratified by its mother's milk; its sense of touch derives pleasure from pressing its mother's breast; while its eyes gaze with delight upon the face of its mother languishing with unutterable expressions of parental love. The intensity of this pleasure is indicated by the eagerness with which a sucking child attempts to leap into its mother's arms; by the cries it utters when detained from the breast; and by the sleep, or the sweet and placid countenance, which follows or accompanies the gratification of all its senses.

I hasten to say a few words on the pleasures we receive from our

Ears.

And here, I shall begin by observing that we are besieged as it were with pleasure through the medium of this sense. Soon after we come into the world, the sweet and tender voice of a mother insinuates pleasure into our opening ears. The human voice continues to afford us pleasure in every period of life by means of conversation and music. We overlook the pleasing effects of the human voice in conversation because they are so common. Pub-

lic speakers often charm as much by the melody of their voices, as by their eloquence. The notes of the human voice as exhibited in conversation are various, and equally pleasing, according to the taste of the ear. They may be divided into the dove-toned, the bell-toned, the velvet-toned, and the voice of childhood. The last of these has produced medicinal effects. The prattle of children often dissipated the low spirits of Luther; and Mr. Cowper the poet was revived in his fits of melancholy only by hearing the voice of Mr. Hayley's son, a boy of twelve years of age. But great as the pleasure is we derive from the tones of the human voice in conversation, it is feeble when compared to that which is derived from music, both vocal and instrumental. Of this it would be easy to multiply examples. The heathen poets tell us of hell being moved by it to surrender up its prisoners. The celebrated Handel once fainted in performing a part in his oratorio, called the Messiah. The intensity of this pleasure may be conceived, by attending to the sacrifices of time, reputation, and money, which are sometimes made to purchase it. The count Oginske, a Polish gentleman, we are told, spent twenty-five thousand pounds sterling a year wholly in musical entertainments.

But it is not from the human voice, nor from vocal or instrumental music alone, that we inhale pleasure by our ears. The feathered tribes, at certain seasons of the year, meet us in our morning and evening walks, and charm the sense of hearing with their tributary notes. Nor is this all. Certain quadru-

ped and insects, nay, even the winds, rain, and streams of water, all do homage to the ears of man: hence the pleasure with which we listen to the lowing of cattle, to the bleating of sheep, to the humming of bees, to the hollow murmur of the breeze passing through the lofty pines, to the gentle dropping of rain upon the roof of a house, and to the noise of water passing over a bed of pebbles in a brook.

Thus, gentlemen, I have hinted at a few of the pleasures which we receive through the medium of each of our senses. Our time will not permit me to mention any more. The subject is opened to you; and you may pursue it at your leisure.

Upon the pleasures we derive from all the senses, I shall remark; that it was not necessary to connect pleasure with the exercise of the ordinary functions of any one of them. Thus procuring the means of subsistence would have been sufficient of itself to employ our fingers in exercising the sense of touch. To diminish the pain of hunger, would have been a sufficient motive to prompt us to eat. The necessary purposes of hearing might have been answered, without the ear having been made capable of relishing melody, and harmony; also of smell, without the sensation of fragrant odors; and of vision, without the charms of beauty and magnificence. All these sensations are superadded in order to swell the measure of our pleasures. In a word, our bodies may be compared to a violin: the senses are its strings; every thing beautiful and sublime in nature

and art is its bow; the Creator is the hand that moves it; and pleasure, nearly constant pleasure, their necessary effect.

After what has been said upon this subject I need hardly add, that pleasure, or good, predominates greatly over pain or evil in the world. Were it otherwise, very different would be the condition of mankind. The words of Dr. Price, upon contrasting good and evil in our world, will supply me with a passage so pertinent to this subject, that I shall beg leave to repeat it. "If evil had been intended to predominate over good," says the doctor, "the lower animals, and all inanimate nature, instead of being made to minister to our delight, would have been made to harass and annoy us. The bee would have been without her honey; and the rose without its fragrance. The fields would have been without their cheerful green and fragrant flowers. The fire would have scorched, without warming us. The light of day would have dazzled without cheering us. Every breath of air would have cut us like the point of a sword. The appetites and senses would have been the instruments of torture, and never of pleasure, except when turned out of their common course by incidental causes. Every touch would have been felt like the rubbing of a wound; every taste would have been a bitter; and every sound, a scream."

All the pleasures which have been mentioned are influenced both in their degrees and duration by certain laws of sensation, which were delivered in a former lecture. Some are increased, others lessened,

by repetition; while a few continue after the impression, which produces them, ceases to act upon the senses.

The pleasures we derive from smelling are of the shortest duration; owing to that sense being so soon satiated. The ear retains its power of being pleased still longer; but the eye and the tongue possess the greatest capacity, not only for numerous but durable pleasures.

The votaries for sensual gratifications have endeavoured to increase their enjoyments by combining the pleasures of two or three senses together. Thus in many countries, music is introduced to add to the pleasures of the table. But all these combinations of the pleasures of the different senses have arisen from an ignorance of the laws of sensation: one of which is, that we are able to receive only a single sensation in our minds at once. We enjoy these multiplied pleasures therefore only in succession; or we enjoy such a compound of them, that they constitute a new and single sensation. This is illustrated by the green colour which the impressions of yellow and blue excite on the mind.

The suspension or loss of the use of one sense often increases the pleasures of the others. Blind persons enjoy music more than those who possess the use of their eyesight. In reflecting upon this fact, I have consoled myself in viewing the labours and sufferings of some of our domestic animals. I have suspected, from the absence of that part of the sense of touch which is confined to the fingers,

and the limited exercises of their senses of seeing, hearing, and smelling, that they enjoyed much more pleasure than we do in eating. It is certain a horse, after being beaten, or otherwise ill treated by his master, never pouts over his food, but partakes of it with eagerness. The pleasure of eating here predominates over the irritation of his temper, which is not the case in the human species.

I have supposed, in another place,* that it was possible to increase our knowledge by increasing the acuteness and extent of our senses. Our pleasures, I have no doubt, might be increased by the same means; but our pains I believe would be increased in the same proportion. It is only in a state where there are no sources of pain, that an increase of the capacity of the senses, to receive pleasure, can constitute an addition to our happiness.

II. We come now, agreeably to our order, to inquire into the changes which are produced in the nerves by the sensation of pleasure, or, in other words, to inquire into its proximate cause. For this purpose I shall be under the necessity of anticipating a part of our pathology, by mentioning the cause of pain, and of repeating the explanation which was formerly delivered of harmony in sounds. The causes of pain are mechanical and chemical. The former are from impulse, distention, and pressure; the latter are from the action of irritating substances upon the body. They both produce their effects by

* Introductory lecture upon the influence of physical causes upon the intellectual faculties.

inducing deranged actions or a tendency to disorganization in the nerves upon which they act; and they are both attended with an accumulation of excitement in the part which is the seat of the pain.

Again. The pleasure we enjoy from music is derived from a certain order and relationship of vibrations, which are excited in the ear to each other; while the pain we feel from discord is produced by the want of order, or relationship, in the vibrations which strike the ear. These two principles being admitted, I proceed to remark, that a less degree of excitement in the same motions which produce pain, conveyed along the nerves to the brain and mind in harmony with each other, produces pleasure. I shall illustrate my meaning by an obvious simile. Pleasure may be compared to a clear stream of water flowing with rapidity through a straight and narrow channel; while pain resembles the same stream rendered turbid by flowing with accumulated velocity, and in every possible crooked direction.

It is no objection to the truth of the explanation, of the cause of pleasure and pain which I have given, that elevated excitement with regular or natural motions sometimes takes place without being accompanied with pleasure; and that morbid excitement with deranged or irregular motions sometimes takes place without being accompanied with pain. These may happen from both kinds of excitement, and both kinds of motions, occurring in parts of the body in which sensibility exists in a limited degree, or in which it has been exhausted by protracted impres-

sions; nor is it any objection to our explanation of the cause of pain, that it exists without obvious motions; for these are sometimes suffocated and suppressed by the excess of excitement in the nerves.

It is no new opinion that pleasure and pain are related to each other. The fable of Socrates long ago taught the world, that pleasure and pain, were originally sisters; that they met with different lots in life: the one being acceptable every where; the other avoided and hated. Upon viewing this different reception of these two sisters in the world, the fable adds, that Jupiter joined them together in such a manner, that whosoever embraced one, could not avoid embracing the other. Even the words of a well known song bear testimony to the affinity of pleasure to pain:

“Those dear eyes! how soft they languish!

“Feel my heart with rapture beat!

“*Pleasure* turns almost to *Anguish*,

“When the transport is so sweet.”

Let us now compare the principles which have been delivered, with the phenomena of certain pains and pleasures.

Does distention in a high degree produce pain? A more moderate degree of it certainly produces pleasure, as in the effects of wine, the warm bath, temperate air, and of opium upon the nervous system. They are all stimulants, and act by producing moderate fullness in the bloodvessels and gentle excitement in the nerves.

2. Do certain motions of the body, when they overstretch the sentient and moving fibres, produce the pain of fatigue? The same motions in a moderate degree produce the pleasures, which we formerly ascribed to certain exercises.

3. Does a certain degree of relaxation or debility invite pain? A moderate degree of it produces pleasure; as in rest after labour, and ease after a violent paroxysm of pain. It is most obvious after parturition.

4. Does a moderate degree of heat, such as takes place in our climate in June, by its moderate stimulus give pleasure? The absence of heat, such as we experience in December, gives pain. The pain in the latter case is from pressure, induced by the increased approximation of the nervous fibres to each other. That this is the case is evident from the contraction, or diminution of size, of the parts affected by the cold.

5. Are certain parts of the body in some people, from a peculiar idiosyncrasy, subject to pains from impressions which do not affect other people? We observe the contrast to these sensations from probably a less degree of impression in the cases of pleasure from idiosyncrasy formerly mentioned.

6. Does the violent action of the acceleratores urinæ in strangury give pain? The moderate action of the same muscles gives pleasure in the sexual intercourse.

7. Do certain mechanical stimuli such as rough substances give pain, when applied to the body? The

moderate stimulus of smooth and soft substances gives pleasure, by an inferior degree of the same impression and excitement modified in such a manner as to produce harmony of motion in the sentient part, to which they are applied.

8. Are there certain sensations which are composed of pleasure and pain? In this case the impressions and motions are probably of a mixed nature. These sensations occur in tickling, and in certain stages of the hysteria.

9. The pleasure from taste and odors depends upon certain impressions made upon the organs of taste and smelling. It is well known that an excess, in the stimulus of the most pleasant of them, is painful: thus we talk of a nauseous sweet, and of "dying of a rose in aromatic pain." They are agreeable and disagreeable only from a difference in the motion as to force or harmony which is imparted to the nerves of the tongue and nose.

10. Excess of light, certain glaring colours, certain figures, bodies too distant, and when very large and broken into angles, give pain to the eye. The same things give pleasure, when varied in degree or form. May not this be owing, in the cases of excess of light and of glaring colours, to an excess of stimulus imparted to the eye? and may not the pleasure, which the morning and evening light, the light of the moon, the lovely blue of the sky, and the delicate green of the surface of the earth, all impart to the eye, be owing to an inferior degree of the

same stimulus which produces the pain that has been described?

11. How shall we account for the pleasure we derive from contemplating a beautiful face? May it not be produced by the reflections of the rays of light upon the eye, being in such an exact order as to produce certain harmonious motions in the retina of the eye which are necessarily connected with pleasure? and may not the pain we feel, from viewing deformity, be occasioned by such a reflection of the rays of light from the body, that is viewed, as to produce discordant, and of course painful or disagreeable motions in the organs of vision?

12. The pleasure we derive from our ears has always been ascribed to impressions and vibrations of a peculiar kind, while pain in that organ, as an organ of sensation, has as uniformly been ascribed to an excess, or dissonance of similar impressions. It is from the manner in which pleasure and pain are excited in this organ that I have borrowed my analogies to explain their causes in all the other senses.

Dr. Haller says, that there is an afflux of blood to that part of the body in which pleasure is felt. This is certainly the case in several acts of pleasurable sensation; but it is not the case in all of them. In some instances, there is an abstraction of blood, and of impression, from the part or parts from which the pleasurable sensation is derived, as in rest after labour, and in that which follows parturition, as also in all other cases of pleasure from relaxation. Indeed

relaxation is so extensive a source of pleasurable sensations that Mr. Burke, in his treatise on the sublime and beautiful, makes the proximate cause of pleasure wholly to consist in it. This appears to be an error; the extreme of Dr. Haller's. If the explanation I have given be adopted, it will embrace both distention and relaxation: the one elevating, and the other reducing, sentient parts to the point of pleasure. I conclude therefore that motions of a moderate degree of force, and in regular order, constitute pleasure; and that motions in excess, and out of order, constitute pain.

From the explanation which has been given of the cause of the pleasures of the senses, we may account for several of the phenomena of pleasure and pain.

1. I mentioned formerly when treating upon the nervous system, that certain sensations originally painful, or disagreeable, became pleasant or agreeable from habit. The reason of this will now be obvious to you. Pain, I have said, depends upon an excess of the same impressions which produce pleasure. I said likewise, that while weak impressions become acute or strong, strong impressions become dull or feeble by repetition. The conversion therefore of painful into pleasant sensations, depends upon the diminution of impressions from the painful down to the pleasurable point, or grade; and perhaps upon a change, from disorder to order, or from discord to harmony, in the sensations excited by them. This, at once, explains the reason why the air, which gives pain to a new born infant, becomes in the course of

a few months one of its greatest pleasures. It explains the reason likewise, why labour, which is at first accompanied with pain from the distention and pressure of the nerves, becomes pleasant from habit; and thus affords consolation to us, in contemplating the extent of this supposed evil in our world. It enables us further to account for tobacco, ardent spirits, opium, garlic, and olives, which are so disagreeable to the taste, the first time they are taken, becoming by repetition extremely agreeable. It moreover disposes us to believe a fact, which is mentioned by some travellers, and which would otherwise appear incredible: that the negroes in the West Indies, after agonizing for an hour or two under the whip, sometimes burst out a laughing, from a sudden sensation of pleasure, in the face of a merciless overseer. The pain in all these cases wears down the system to the grade of pleasure. Lastly, the theory, which I have delivered, explains the reason why pinching the flesh in a certain state of malignant fevers, and even cutting the flesh in surgical operations, have sometimes given pleasure. The nerves in these cases are reduced so much below their ordinary state of sensibility by disease, as to be incapable of being elevated to the point of pain; and hence when forcibly impressed, they rise only to the point of pleasure.

2. From what has been said, we may learn the reason why pain, when very intense, or continued for a long time, destroys itself. It depends either upon the force of impression, destroying the continuity of

the nerves, or upon its rendering them paralytic, and thus destroying their sensibility. One reason why women bear pain with more fortitude, or with less vehement complaints than men, arises probably from their nerves sooner attaining, under its pressure, the paralytic point; and this in consequence of the more delicate texture of their nervous systems. Several important inferences might be made from the operation of the two laws of sensation that have been mentioned; but they would lead us far from the subject of our lectures.

Having enumerated the sources of the pleasures of the senses, and explained as far as I was able their proximate cause, and several of the phenomena connected with them, I proceed next to mention their final cause. This must be obvious to you all. They were intended to serve as the preservers of our existence. They prompt us to eat, to drink, and to propagate our species. They impel us to action and to rest. They allure us from our beds in the morning, and drive us to them in the evening. They invite us to explore the works of nature and art. They are the channels through which health is communicated to the body, and pleasure and activity to the mind; and they should be the avenues through which we should be conducted to the great and original fountain of more durable and substantial happiness. But numerous and delightful as all these pleasures, and durable as some of them are, they have their alloy.

In the first place, they cannot be enjoyed without

good health. What are all the pleasures of feeling, tasting, and smelling, to a man confined to his bed with a fit of the gout? and what are all the delights which light, colour, figure, height, distance, and magnitude, impart to the eye, or which natural or artificial sounds impart to the ear, to a man who is afflicted with a paroxysm of melancholy? The senses, moreover, are often untuned by diseases peculiar to themselves so as to emit no tones of pleasure to the impressions of external objects.

2. The pleasures of sensation are of a limited nature as to their degree. No ingenuity has ever been able to raise them so high as to perfectly satisfy the mind.

3. The pleasures of our senses are so nearly related to pain that they often terminate in it. I have repeatedly heard it said, that fatigue, from an excess in the enjoyment of pleasure, is more painful than from any other cause.

4. And lastly, all the pleasures of our senses are of a short duration. Old age seldom fails to impair them to such a degree, as to antedate the more complete and certain extinction of them in the grave.

In these evils heaven is still kind; since we are taught by them to aspire to the more sublime and durable pleasures of the mind. These shall be the subject of our next lecture.

LECTURE II.

ON THE PLEASURES OF THE MIND.

GENTLEMEN,

IN treating upon the pleasures of the mind, I shall follow the same order that I did in treating upon the pleasures of the senses: by

I. Enumerating the pleasures of each of the faculties of the mind. Under this head I shall first enumerate the pleasures we derive from the exercise of our own faculties, and afterwards from beholding their exercises in other people.

II. I shall inquire into their proximate cause, and conclude with some general remarks upon them.

Those faculties of the mind, the exercises of which are to be mentioned as the subjects of pleasure, are memory, imagination, understanding, will, the passions, and the moral faculties. To these I shall add a few remarks upon the pleasures we derive from association and consciousness.

In listening to the detail of the pleasures of the mind, I am about to deliver, I beg you to recollect that they are all of a medicinal nature; and that they have often cured diseases which have baffled the most powerful remedies that have been taken from the

vegetable and mineral kingdoms. They have, further, the great advantage over most of them in being cheap, and at all times agreeable to sick people.

By means of the faculty of MEMORY, we command, as it were, the suns, that have gone down, to rise again. We converse with departed friends, and enjoy in recollection all our past pleasures. But we do more: we penetrate into the remote ages of antiquity; and upon our beds, or by our firesides, we view the sieges, battles, and triumphs, of ancient nations. We are delighted, moreover, by means of this faculty, in retaining in our minds all those wonderful works of nature and art, which surprise us by their number and magnitude. But present as well as past objects constitute a part of the pleasures of memory. It is by means of this faculty, that we know and distinguish our homes, our wives, our children, and our friends. For a more minute account of the pleasures of the memory, I refer you to Rogers's beautiful poem upon this subject. I have only enumerated a few of its separate pleasures; but they are much increased and magnified by their combination with the pleasures of the imagination and understanding. It is worthy of notice that while we are able to enjoy pleasure, over and over, by the exercises of memory, we are unable, by any of its acts, to renew our departed pains.

The IMAGINATION is a source of immense delight. Its pleasures have been celebrated in verse by Dr. Akenside, and in prose by Mr. Addison. Creation

is the business of this faculty. It revives departed sensations as well as ideas. It gives, to absent objects, the vivid forms of real life. It combines images and pleasures in a thousand ways. One while it raises us to the pinnacle of military and literary fame. At another time, it places us upon an eminence in a popular assembly, and bids us view thousands listening with rapture to our eloquence. Sometimes it transports us across the ocean in quest of knowledge; and again it conveys us into the unexplored regions of our own country in search of new plants and animals and other objects of natural history. Again it delights us with stately edifices planned by our taste, and executed by our wealth. In a word, it is by means of this faculty, that we ride in balloons, and build castles even in the air.

But the strongest proof of the pleasure, which the gratification of this faculty is capable of affording, is furnished by the history of the poets. It appears that most of them have been poor and unfortunate in life, owing wholly to their yielding to the transporting pleasures of their imaginations, at the expense of those means of subsistence, which, with the talents they possessed for other things, would have insured them wealth and independence.

The pleasures of the UNDERSTANDING are of the most delicate and sublime nature. They consist in the investigation and discovery of truth in all arts and sciences: now truth is so congenial to the human mind, that it cannot be perceived without pleasure. Even the fictions of poetry, Horace tells us, should

be made to resemble it in order to render them agreeable.* The nature of this intellectual pleasure may be conceived of from the abstraction it sometimes produces from all corporeal and sensible objects, and from the effects which its first impressions make upon the body. Archimedes in the midst of company, when he had demonstrated a difficult problem, could not refrain from crying out *Eureka, Eureka*. Mr. Rittenhouse fainted upon perceiving the transit of Venus on the 3d of June 1769. Lord Mansfield declared that, in all his long protracted labours and watchings at the bar, and upon the bench, he never knew what thirst and hunger were, owing to the stimulus of pleasant thoughts overcoming those sensations.

The pleasures of novelty belong chiefly to the understanding. They are felt by travellers in the highest degree; but ancient and modern history, wars, revolutions, and new events of all kinds, afford a large supply of this pleasure.

It is worthy of notice and of gratitude to the Supreme Being, that the pleasures of the understanding have no antagonist in pain. While the acquisition of knowledge gives pleasure, pain is not the necessary consequence of ignorance and of the inactivity of the understanding. The

“Wise is happy, nature to explore;

“The fool is happy that he knows no more.”

In this respect, you see the understanding differs

* “*Sint ficta proxima veris.*”

from the senses and the passions; all the pleasures of which have opposite pains.

The pleasures of *TASTE*, whether it be an act of the understanding, or of a native faculty, belong to this head. They embrace order and proportion in architecture; variety and arrangement in perspective; colour, expression, and proportion, in painting; the three unities in dramatic performances, and order grammar, harmony, and correctness of imagery, in composition, both in prose and verse. The pleasure, which belongs to taste, has been, in some cases, of so exquisite a nature as to produce syncope. Octavia fainted upon hearing those verses in the sixth *Æneid* of Virgil, in which he foretold the future glory of her son. Many other examples, of the physical effects of sublime passages of poetry upon the body, might be mentioned.

The pleasures of the *WILL* consist in contemplating the mysterious union of free agency and necessity in all its operations. We are barely pleased with what we understand; but the exercise of admiration is necessary to our intellectual happiness; and this can be employed only upon subjects which are removed beyond our comprehension. In this respect we continue to be children in adult life: for they throw away their playthings as soon as they discover the manner in which they are amused by them. Were the human mind devoid of mystery in its texture and operations, it would stand alone in the works of the Creator; and however strange it may sound, I believe the happiness of the saint and the philoso-

pher would both be at an end, were it possible for them to comprehend all the mysteries of religion and nature. Perhaps perfection in knowledge, as well as in virtue, may be denied to finite creatures to all eternity, as the necessary means of their happiness; and that the great first cause may appear for ever to be, what he now is, the only wise and perfect Being.

While we thus contemplate, with delightful wonder, the union of free agency and necessity, we derive pleasure from a sense of each of their respective operations. The pleasure we enjoy in free agency is felt in the sacrifices that we make for the attainment and preservation of liberty. The degree of the pleasure, which this blessing is capable of affording, was manifested a few years ago in a slave, who was exposed to sale at a public vendue in the Delaware state. A gentleman, who attended the sale, was so affected with the situation, and so pleased with the countenance of the slave, that he bought him, and immediately afterwards declared him to be a free-man. The emancipated slave fainted in a fit of joy, and was with difficulty recovered from it.

But we derive pleasure from the possession of free agency, in reflecting that we are masters of ourselves; and that no injustice will be done to us hereafter in the inquiry that will be made into our moral conduct.

A belief in the will acting from necessity, has likewise its pleasures. It disposes us to view the hearts of all the men that move our world by their power or their talents, as under the direction of a wise and good being; and it assures us, that all the

events that relate to our individual happiness, whether from moral or physical causes, are in his hands; and that his hand is in every event.

I am aware, that I dissent from two popular and rigid sects of philosophers and divines, in thus admitting the truth of the opinions held by each of them. But an exclusive belief in either of them, so far from being attended with pleasure, is calculated to excite misery and despair. I repeat, therefore, what I said formerly in speaking of the operation of the will, that both opinions appear to me to be alike true; and that we act most freely when we act most necessarily, and most necessarily when we act most freely.

In reviewing the pleasures of the faculties which have been mentioned, we are not to suppose they are enjoyed separately. They all concur in their operations in producing the highest degree of pleasure.

The PASSIONS are an inexhaustible source of mental pleasure, particularly those which are accompanied with desire: such as hope and love. The former feasts upon all possible good; and the latter, when pure and reciprocal, creates a little heaven upon earth. The domestic affections in all their numerous relations, of husband, wife, parent, and child, are likewise a fruitful source of pleasure to the mind. It would require many lectures to enumerate them all. The news of the birth of children is always accompanied with pleasure. An addition is made to this pleasure, by observing the opening of their minds in thought, and of their lips in speech. The unfortunate Mrs.

Robinson, in the history of her life, has given us a beautiful example of the latter of those pleasures. One evening she took her only child, a little girl of eleven months old, into the open air, to look at a full and splendid moon. Suddenly it was obscured by a cloud. Instantly the child cried out "all gone." These were the first words she had uttered. The rapture of the mother exceeded all description.

But, further, there are times and circumstances, in which the domestic affections produce a harvest of joy. These are the recovery of a child from a dangerous fit of sickness, the comfortable settlement of a daughter, the accomplishments and reputation of a son, and, lastly, the interview of all the different branches of a family after a long separation. The joy from the return of a son, after a long absence from home, produced death in a father, according to Dr. Boerhaave. From this account of the pleasures, which arise from the gratification of the domestic affections, you will not be surprised in hearing hereafter that married men and women are more healthy and longer lived than bachelors and maids; nor will you wonder at my mentioning matrimony as a remedy for certain nervous diseases. A lady in this city was cured of madness, by the birth and suckling of a child. Her husband took her child from her lest it should contract its mother's disease; in consequence of which her madness returned.

What shall I say of the pleasures of the MORAL FACULTIES? It would require a pen, made of a quill plucked from an angel's wing, to describe such of

them as are pure, in a manner equal to their sublime and heavenly nature. The pleasures of the moral faculty operating in acts of justice and benevolence, embracing friends, country, the whole world; past and future generations; still more, all intelligent beings; for in this consists the perfection of virtue. I say these pleasures are among the highest our natures are capable of enjoying, and are only exceeded by those which arise from the exercises of the sense of Deity in the love and adoration of the fountain of all perfection; and from a conscience at peace with itself, and void of offence towards God and man. The intensity of the pleasure which is derived from these sources will appear more striking when we attend to its effects in destroying bodily pain. This is strictly agreeable to one of the laws of sensation formerly mentioned, and which was illustrated by several examples. To doubt, therefore, of the accounts that are given in ecclesiastical history of the joy of the primitive martyrs to christianity, in flames of fire, and in the fangs of wild beasts, is to call in question an obvious truth in physiology.

I spoke formerly of the perversion of the senses, and of the artificial pleasures which some people derive from nauseous tastes and fetid odors. The same thing takes place in the moral faculty, properly so called. Hence we observe many people to derive great pleasure from the gratification of pride, injustice, oppression, malice, and revenge. I know it is commonly said this gratification is accompanied with pain; but this is not the case, or it would not

be so general in the world. Persons under the influence of those passions, and of the acts that are dictated by them, sometimes discover the pleasure they excite, in exultations, smiles, and even bursts of laughter. Vice, in all these cases, usurps the motions of the benevolent and pious virtues. But a perversion of the moral faculty rises to such a height, in some instances, as to seduce one or more of the senses to act with it. This is obvious in all such persons as take delight in seeing public executions. I have heard of a man who lived in Paris during the reign of Robespierre, who declared, that the most delightful music he ever heard was the sound of the guillotine; and we read of a certain John Ward, a member of the British parliament in the reign of Queen Ann, who was confined in jail for fraud and perjury, whose only pleasure consisted in giving poison to cats and dogs, and witnessing the pain and convulsions with which they expired. These instances of depravity do not belong to the ordinary character of man. They are as much the effects of morbid idiosyncrasy, as a relish for fetid odors, or putrid meats is, of the same state of the senses of smell and taste.

I might go on and enumerate the pleasures which all the faculties of the mind receive from the various pursuits and employments which are common among mankind. Many hours might be taken up in mentioning the pleasures which accompany the gradual and honest acquisition of reputation, property, and power, and of certain innocent intellectual amuse-

ments. At present I shall only notice the pleasures of agriculture. Here the memory, the imagination, the understanding, the taste, and even the moral faculties, in all their various operations, are highly and constantly gratified. A relish for this pleasure is as natural to us, as a relish for the pleasures of light and food. Nor can it be subdued in the human heart; hence we find the rich citizen, the war-worn soldier, and the sea-beaten mariner, are seldom satisfied with their attainments in wealth and fame; but please themselves constantly with the expectation of concluding the labours and pleasures of their lives, by cultivating a spot of earth.

Conversation, in which knowledge, wit, and good humor, are exhibited, should not be omitted in the history of the pleasures of the mind. The cessation of labour, after the accomplishment of difficult enterprises, and the review of past dangers and sufferings, are likewise sources of great pleasure. Mr. Gibbon has given us a charming picture of the former, in his account of a walk he took the evening after he had finished his history of "The Decline and Fall of the Roman Empire." The soldier and the sailor furnish striking instances, in their habitual mirth and festivity, of the latter; and even the West India slave exhibits a certain degree of this kind of pleasure, by singing and dancing, all night, after working a whole day under a vertical sun, with the sound of a whip constantly in his ears.

The pleasures we derive from the ASSOCIATION OF IDEAS, are of an extensive and peculiar nature.

I pass over, in this place, the origin of those pleasures in self love, and their gradual transition, through successive associations, until they produce, in an apparently mechanical manner, disinterestedness and theopathy, according to the theory of Dr. Hartley; nor shall I do more than barely mention the support, which the doctor's theory receives from the analogous manner in which the sensation of the first impression of air upon the lungs is lost, in subsequent life, by the predominance of the motions of the heart and brain, that are associated with it in the production of animal life. Our business in this place is only to remark, that the pleasures of association afford a perpetual feast in the evening of life. A house, a farm, a fruit tree, and a classical book, have often carried the mind back to the innocent and delightful scenes of a country school. A peculiar colour in dress, a tune, and a line of poetry, have often revived the raptures of courtship; while the fife and the drum have renewed, in a veteran soldier, the transports of his youthful victories and glory. This pleasure is universal, and felt by persons in the lowest rank in society, in common with those who have been educated in polished life. An old native African obtained permission from his master, some years ago, to go from home, in order to see a lion, that was conducted as a show through the state of New Jersey. The moment he saw him, in spite of the torpid habits of mind and body contracted by fifty years' slavery, he was transported with joy, which he vented by jumping, dancing, and

loud acclamations. He had been familiar with that animal, when a boy, in his native country; and the sight of him suddenly poured upon his mind the recollection of all his enjoyments from liberty and domestic endearments, in his own country, in the early part of his life. Happily, the pleasures from association, like those of the understanding, have no antagonists in pain, when they are enjoyed in old age: for in that late period of our lives, the memory retains a vivid recollection only of the events of childhood and youth; of course it can never revive, by association, the losses, disappointments, treacheries, and persecutions, which usually imbitter the middle stage of life. The kindness of Heaven, in this constitution of our memories, deserves our gratitude. Were it otherwise, our last days would be marked with nothing but misanthropy or tears.

It remains now only to mention the pleasures of CONSCIOUSNESS, under this head. It is confined chiefly to a sense of our existence, and of our personal identity. The latter may be conceived of, from a single fact. There never was a man, who was willing to change his own mind for that of any other person's, however willing he might be to exchange his condition, limbs, and face, with him. Of course there is a constant pleasure in being what we are.

Thus far have I mentioned the pleasures of the mind, from the operation of its own faculties. Let

us next attend to the pleasure it derives from contemplating the exercises of the faculties in other people.

The exploits of MEMORY excite a pleasing wonder. The famous Thomas Fuller, a black slave in Virginia, received frequent rewards for amusing strangers and travellers, by exhibiting the strength and extent of his memory in figures.

The operations of a brilliant and fertile IMAGINATION, whether it be employed in the regions of science, eloquence, or poetry, afford an exquisite degree of pleasure. The late Lord Chatham and Mr. Burke and the present Mr. Curran of Ireland stand unrivalled for the pleasures excited by the force, variety, and imagery, of their imaginations, discovered by the two former in their speeches in the British Parliament, and by the latter, at the Irish bar.

But great as the pleasure is, we derive from surveying an extensive and splendid imagination, it is feeble compared with that which we enjoy from attending to the operations of a vigorous and comprehensive understanding, whether it appear in the quick exercises of genius, or in the more slow and perceptible acts of judgment and reasoning. It is impossible to reflect upon the gigantic intellects of Sir Isaac Newton, Dr. Haller, and Dr. Johnson, without feeling a pleasure similar to that which travellers describe from viewing a stupendous mountain, whose summit is invisible from its height, and

which seems to diminish the size of all the objects that surround it.

We are pleased with the operations of the *WILL* in other people, whether they appear in the form of free agency or necessity. We bestow upon the former, the honourable epithet of independence, and we are pleased in considering the latter as directed by an infinitely wise and just Being in such a manner as to render general happiness the result of all its operations.

But how feeble are our emotions of pleasure upon hearing the names of Fuller, Chatham, Burke, Curran, Newton, Haller, and Johnson, who charmed and astonished us by exploits of memory, imagination, and understanding, compared with the delightful sensations we experience from hearing the names of the philanthropic Mr. Howard, and the godlike Anthony Benezet!

It must be obvious to you, gentlemen, that the pleasures of the senses and of the mind are sometimes so blended that it is difficult in many cases to draw a line between them. Thus the pleasures of the table are often united with the pleasures of friendship, and the pleasure of dancing with that of love. Taste and vision, musical sounds and devotion, likewise frequently combine their pleasures with each other. In all these cases the external and internal stimuli, acting together, increase the capacity of the brain and heart to receive pleasure by increasing their distention.

We come now to inquire into the proximate cause of the pleasures of the mind. This may be summed up in a few words. They are the effects of impressions of a certain definite or moderate degree of force, accompanied with motions of a regular or harmonious nature in the brain and heart, and communicated by them to the mind. That this is the case I infer from dissections, which discover marks of undue and irregular excitement in the brain, and of rupture or disorganization in the heart, where death has been the consequence of an excess of intellectual or moral pleasure. The final cause of the pleasures of the mind is very plain. They were intended to beget activity, to prompt to study, and to excite us to do good, and be good. Pleasure follows the acquisition of knowledge, and the exercise of the benevolent and pious affections, by an eternal and unchangeable institution of our natures. The monk, therefore, who nailed up a window that commanded a view of a beautiful landscape, and who wished that he could love his Maker without feeling any pleasure in it, committed an offence against an eternal law of the Creator of the soul of man.

By a happy constitution of the mind, repetition has the same effect in rendering certain disagreeable impressions, upon it, agreeable, that it has upon the body. Grief after a while softens into a pleasant melancholy. Disappointments in love and ambition have often produced the most settled habits of virtue and good conduct. Dr. Priestly tells us in the post-

humorous history of his life, that he always felt unusually happy the day after he met with an affliction of any kind. We may explain by the same law the reason why distressing sights become pleasant and agreeable by repetition. It is owing to the diminution of impression upon the mind from the grade of pain down to the grade of pleasure. It is truly physiological therefore to believe the accounts we read of persons enjoying the combats of gladiators, of idle people delighting in the sight of executions, and of tyrants rioting in the blood of their subjects. It is remarkable that those pleasures of the body and mind which become pleasant, after having been painful, take a much stronger hold of our senses and passions than those that are originally pleasant. For example, men who are attached to tobacco, garlic, or rum, prefer them to sugar, and endure more misery from the want of them, than from any of the common necessities of life. In like manner an ugly woman, when beloved, is the object of a more violent and lasting attachment than a handsome woman. We observe also certain studies and employments, originally of the most disagreeable nature, to become agreeable from habit. But further; we observe certain moral actions that are performed at first with difficulty, and even disgust, become by repetition more pleasant than such as were performed originally with pleasure. Dr. Horn relates an instance of a man in whom the thoughts of death and judgment were wont to produce the utmost horror. By

appropriating a certain portion of his time every evening to meditating upon them, they became less terrible to him; and finally in the course of a few months, they not only ceased to terrify him, but the thoughts of them became a source of his greatest pleasures. These facts suggest a very important truth in morals. They teach us that good, when known through the medium of evil, is productive of the greatest quantity of happiness, and that too of the most durable nature. Constituted as we are, we should have been less happy without it. They suggest further the importance of defending children from spectacles of pain and misery, not only in their fellow creatures but in dumb animals, lest by repetition they should become the sources of amusement or pleasure.

I shall dismiss the subject of the pleasures of the senses and the mind by asking a few questions.

1. Is it probable that such an immense and ingenious contrivance, for the enjoyment of corporeal and mental pleasure, should have been given to us, to last no longer than the ordinary term of human existence in this world?

2. Does not the exact correspondence which exists between all our capacities, and avenues of pleasure, (the sexual appetite only excepted,) and the ineffable pleasures of a future world which are described in the new and old testaments, render it highly probable, that our capacities, and those pleasures were made for each other?

3. Is it probable that a wise and good Being, whose means and ends are so exactly suited to each other in such parts of his works as we are able to comprehend, will finally waste or throw away the costly and beautiful apparatus he has given us for the enjoyment of corporeal and mental pleasures? But I am wandering from the subject of our lectures. Let us be good here; and we shall be wise hereafter.

FINIS.